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One Way to Improve Teaching

HOW to develop awareness of the implications of a given problem presented to students for solution is one of the primary challenges to teachers in any department.

Consider, for example, the scientific concepts involved in attempting to present Archimedes' Law of Displacement or Buoyancy. Here we deal with three states of matter with emphasis upon the liquid and solid states. Then we consider the concepts of density, weight, mass, volume, as factors involved in the study of the law.

When we say that "if a solid is immersed in a liquid, it is buoyed up by a force equal to the weight of the volume of liquid displaced," we too frequently assume that all students in the class have a clear understanding of the concepts, *immersed, buoyed, force, weight, volume,* and *displaced.* They may have some idea about some of these terms, but if they are not entirely clear as to all the details they cannot possibly read that law and know how it might apply to any life situation.

Now let us apply the same principle to the teaching of geometry. "If a straight line is drawn from the vertex of an isosceles triangle perpendicular to the base, it bisects the base and the vertical angle." Here we expect the student to know the attributes or factors of a triangle which identify it as being isosceles. Then we assume that he knows which angle is to be considered as the vertex angle. We assume, too, that he knows what a line does when it bisects another line.

Without this complete knowledge of word meanings involved in this theorem, there is nothing left for the student to do but to memorize the statements of the proof which is usually given. To convince yourself that this is not an idle dream, ask students and adults who have had a course in geometry what their greatest difficulty was and how they finally survived, and you will receive the answer, "I simply had to memorize the proof." Memorizing a proof is entirely a waste of time and energy and certainly can have little *disciplinary* value.

In the commercial area we have conducted a series of experiments to determine the relative merits of greater emphasis upon the language of bookkeeping before attempting to assign students to work sets. A class of thirty was made up of students in Beginning Bookkeeping who, at the end of the first semester, had made such poor progress as to be listed as failures in the course. These students were given a review of the work in the first semester, with special emphasis upon the language of bookkeeping; and by the middle of the second semester more than 50 per cent had reached the level of performance of the class in which they were previously enrolled. At the end of the semester more than 80 per cent of the class passed the course with a grade of C or better, and only three students failed to make the grade. This, by the way, was not a select group.

In the field of English we find many examples of activities within which the same principle applies. Consider the matter of literature. Types of literature can have little value to students as such, unless the symbolism by which the type is identified is made very clear to the student. For example, the essay type receives much consideration in most high schools. Just why is probably a mystery even to some teachers. Surely no one would dare hope for an average student to burn with enthusiasm over Emerson's *Essay on Self-Reliance,* written over a century ago, without applying a type of motivation which would appeal to the average student.

Of what value is it to differentiate types of literature by name? Why teach the drama, or poetry, or the short story, with appreciation as an objective, unless the underlying purposes of each type are clearly set forth and understood by the students? If the drama has a contribution to make to an appreciation of life through the printed page and across the footlights, then this should be made real to the students.

In well-conducted speech classes the students become definitely conscious of the aims and purposes of all the speeches assigned for delivery on various occasions and in various places—because the occasions determine the type as a rule, and the place symbolizes the emphasis to be given the type of speech.

Could not this same principle be applied to the study of the essay, by considering the aims and purposes in the mind of the writer at the time of writing? Then we could add to this a consideration of the cultural needs and interests at the time when the essay was written, so as to show a real relationship between the aims and purposes of the writer and the needs of the society for which the essay was written.

I PRESUME that one of the most serious errors we teachers commit is that of omission rather than commission. We become so familiar with our work from year to year that we begin to weed out the simple methods and illustrations and substitute the assumption that the students should know at least that much. We forget that we fall heir to a new crop of students each year and that they are substantially little better qualified to enter into the new experiences of an academic curriculum than were their predecessors.

Would it not be a profitable enterprise to revise our teaching techniques by adding simple and real illustrations and interpretations rather than eliminating them?—W. J. Klopp, *supervisor of secondary education, Long Beach Public Schools.*

Work Experience in the Education of Youth

WORK-EXPERIENCE as part of the education of youth is now recognized and accepted as desirable and indispensable by both school and community. It has received much attention recently; but much of the talk and thinking about the benefits, value, and place of work-experience has been vague and confusing.

Part of the confusion which arises in connection with the idea of work-experience lies in the overlapping and frequently conflicting interpretations of the concepts of vocational education, vocational guidance, vocational training, and work-experience. In order to achieve mutual agreement on these terms, the following definitions are accepted as a basis for the present consideration:

1. *Vocational education* includes the cultivation of "vocational virtues": instruction in vocational information, exploration in a variety of occupational fields, visits to places where work is done, conversation with workers in a wide range of occupations, partici-

pation in occupational surveys, and a study of available employment opportunities.[1]

2. *Vocational training* identifies the process of developing in the youth those specialized skills that are necessary for the successful performance of the small but important proportion of modern occupations which require skills.[2]

3. *Vocational guidance* includes the functions related to: helping the applicant to evaluate his vocational assets and liabilities; interpreting the facilities offered by the community to the unemployed individual; assisting the youth with the broader aspects of personal and vocational adjustment.[3]

4. *Work-experience* is defined as practical activity of value to the individual and to society which produces goods or services and which meets acceptable standards normal to that work situation. It may or may not be accompanied with pay, and it may be conducted both in and out of school. It should result in the assumption of leadership wherever the capacity exists, in being able to carry the responsibility of the job, in accepting the obligation of employees, in developing habits of punctuality and responsibility, and in the understanding of work in the world.[4]

These indications of areas and functions leave no doubt as to the interrelation of the functions discussed. Work-experience is not the same as the other terms referred to nor is it a kind of experience which can be set apart from any of the other educational functions related to occupations. In fact, it is clear that work-experience is and should be definitely related to other vocational functions and that it can, if properly integrated, make a major contribution to vocational education, vocational training, and vocational guidance.

THE values or contributions of a work-experience program are to be considered with relation to the development of the individual, to the contribution to a school program, and to the values to a community.

In each case it is necessary to assume that such values do not appear spontaneously with the initiation of a work-experience program. But rather the possibilities of realizing the values accrue gradually and, in fact, may be changed as the program develops and as certain basic conditions essential to the realization of these contributions are met. Planning, however, can be more effectively done if desired values are first explored so that the program may be planned with definite objectives in mind. It is further necessary to consider contributions in terms of the local situation and to plan for work-experience situations in which opportunities for the realization of these values may be specifically recognized and observed.

In each category a definite point of orientation must be accepted. With regard to the individual it is clear that the major contribution of work-experience should be to the development of work habits in a realistic situation and to the vocational adjustment of the youth. It would seem also that such experience should contribute to the growth of the individual in the broader sense generally included under the term "general education."

The contributions to the school can be summed up in a general way by the following statement: Through a work-experience program which enables school teachers and officials to come in closer contact with actual employment conditions and to observe the problems faced by their own students in adjusting to these conditions, a basis is afforded for a continuous development of the whole school program to meet the needs of both students and employers.

It is further assumed that such experience will contribute, not only to the individual and to the school, but will add to the youth's understanding of the community and will encourage wide community participation in the consid-

[1] Howard M. Bell, *Matching Youth and Jobs*, American Council on Education, Washington, D. C., 1940, p. 43.
[2] *Ibid.*, p. 46.
[3] *Ibid.*, p. 25-26.
[4] "Report of Youth Conference," Stanford University, September, 1942.

eration of the problems of the vocational adjustment of youth.

In a program deviating markedly from the normal organization and functioning of school and industry, a number of problems not easily resolved can be expected. A first step toward effective solution is the recognition of the broader problems which must be faced. It is evident also that solutions to many of these problems cannot be accomplished by any one individual or community organization. Some means of developing coördination and coöperation are essential. For each community the kind of coördination which will be most effective will grow out of local conditions and local organization. — Vocational Adjustment Committee of the Stanford University 1942 Summer School Workshop.[5]

Next Month

"Preflight Training in California High Schools" is the up-to-the-minute symposium planned for the January Journal. Besides offering suggestions for the improvement of their programs to schools already offering preflight instruction, it should be a valuable guide to those institutions which have not yet crystallized their plans in this area.

Frank B. Lindsay, assistant chief of the Division of Secondary Education, State Department of Education, will give a comprehensive picture of how the preflight program is developing over the State. Prof. Cornelius H. Siemens of the University of California will discuss the problem of training and selecting teachers for preflight courses.

Other writers will discuss such problems as the following: the preflight program in a large city, preaeronautics courses as they are developing in a small high school, problems of high school administration with regard to the aviation offering, the use of homemade equipment and ordinary materials in the preflight classes.

Writers of these articles are the following: George Howden, principal, Selma Union High School; Maurice G. Blair, acting director of the Secondary Curriculum Section, Los Angeles; L. W. Richards, principal, Biggs Union High School; Stanford Hannah, principal, Taft Union High School; Ernest O. Talbott, principal, Los Molinos High School.

A representative of the CAA has been invited to present the national picture, and Theron S. Taber of Bakersfield will explain how the preflight program differs from the CPT program.

Other articles in this issue are the following: "Projected Visual Aids in the Chemistry Class," by Martin Brauti, Newport Harbor Union High School, Newport Beach; "The Teacher's Duty in the Field of Recreation," by Lester Turnbaugh; and "Science Teaching for War and Peace," by Myron S. Allen, Long Beach Junior College.

Ferdinand Diel of Technical High School, Oakland, reports in this same issue on a survey of how the practice of giving credit to those enrolled in study halls affects grades, discipline, and study halls.

[5] Members of this committee include: J. W. Berry, Modesto; Robert F. Curran, Oakland; Frances A. Gower, Santa Barbara; Donald E. Kitch, Contra Costa County; Gordon White, Modesto; John Cornehlsen, adviser; J. Paul Leonard, worshop director.

National Brotherhood Week, February 19-28

The schools of America are being sked to participate in Brotherhood Week, February 19-28, 1943, under the auspices of the National Conference of Christians and Jews. "Victory for Brotherhood" has been selected as the slogan of the week, for unless the victory that we hope to win extends the practice of world brotherhood it will be a failure.

Some Outstanding Work-Experience Programs

Oakland's Work-Experience Program

◀ By WILLIAM R. ODELL

OF the approximately 10,000 tenth, eleventh, and twelfth grade students in Oakland high schools at the end of the second week of school this fall, about fifteen hundred have made arrangements to work part-time and attend school part-time. For these students the typical pattern is four periods of school, either morning or afternoon, and four hours of work daily. Up to now, those employed locally on this basis are boys predominantly, although a considerable number of girls are beginning to participate.

All of this has come about, not by accident, but as the direct result of the development of a carefully coördinated plan by the Oakland high school principals, the Oakland Public Schools' coördinator of placement, the United States Employment Service, and local business and industrial establishments.

In each high school, one teacher has been designated as coördinator of placement activities and has been allowed periods free from teaching to carry on this work. A final determination of the amount of teacher time to be assigned each high school for this purpose has not been arrived at, but it is unlikely that any numerical basis alone will be found suitable. The size of school, the scatter of employers calling on a particular school's population, the time students work, and so forth—these probably will have to be taken into account for each school individually, and then a direct allocation for each school will have to be established in recognition of its peculiar needs.

Students who attend school four hours and work at approved jobs under school supervision receive full credit toward graduation, just as though they were enrolled in the normal six periods of school classes for credit. Students receive credit for work-experience only if approval has been secured in advance and are to be allowed one full unit for the semester for the four-hour daily work program, or one-half unit for a

◀ **A symposium entitled "Work-Experience in California Secondary Schools" appeared in the October, 1942, issue of the "Journal." Included in it were the recommendations of the California Joint Committee on Work-Experience. There was so much interest evidenced in this symposium that we asked a number of the larger school systems in the State to describe what they are doing, particularly with regard to giving credit for work-experience activities. Replies from six of them—Oakland, San Diego, Modesto, Stockton, San Francisco, and Los Angeles—are presented herewith.**

Authors of the six articles are, respectively, Dr. William R. Odell, assistant superintendent, Oakland; Dr. Will C. Crawford, superintendent, San Diego; J. H. Bradley, superintendent, Modesto; J. H. Cave, dean of boys, Stockton High School; Albert D. Graves, deputy superintendent in charge of secondary schools, San Francisco; and Maurice G. Blair, Secondary Curriculum Section, Los Angeles.

two-hour daily work program. There are to be no other fractional credits recognized, and more than one unit per semester for work-experience will not be permitted.

At present neither work for parents and relatives nor domestic work is to be allowed for credit. It is agreed among school authorities in Oakland that whereas worth-while educational values undoubtedly accrue in many cases from work not supervised by public school representatives, credit can be given only when the work done is supervised sufficiently to make it possible for the schools to determine to their own satisfaction that educational values are accruing for individual students.

It is agreed that to receive credit for work-experience each student must hold his job for the full semester, unless good reason can be shown for shifting jobs. And students in some instances will fail in work-experience activities just as in any other school subject.

On the basis of our limited experience to date, certain facts already seem rather clear:

First, if Oakland had not had some such plan in operation, many more students would have gone to work full time and quit school completely. Second, since local employers already want many more young people on a part-time basis than can be supplied, there is every reason to believe that as the year progresses more rather than fewer students will be going onto the part-school, part-work plan. Third, there are so many more jobs in Oakland for students who want to work that it is clear few young people from Oakland will be available for agricultural work, even in closely surrounding areas, unless some unpredictable change comes about.

And fourth, in spite of the possibility of securing high school credit for part-time work and in spite of the availability of many part-time jobs at even as much as $1 per hour, many students feel that attending high school full time provides a better educational basis for their future activities. At the present time at least, large numbers of these students in Oakland are turning deaf ears to all siren calls of employers and are carrying on entirely normal school programs in the midst of all the uncertainties.

Work–Experience for San Diego In-School Youths

By WILL C. CRAWFORD

THE program of work-experience for in-school youth in the San Diego City Schools is nothing new or revolutionary. For a good many years youth whose educational program could be enriched by work-experience have been counseled and guided into work activities and have been given recognition for that work-experience. The war emergency, however, and the resultant request by business and industry for the services of in-school youth have made it necessary for us to expand our program and study it more carefully in order that only the most desirable outcomes will result.

For the purpose of making this study to meet the expanding needs and opportunities for work-experience we asked one of the administrative planning committees to direct its full attention during the pre-school conferences last fall toward this work and to continue to function as a work-experience committee throughout the rest of the school year.

The committee's first job was to make a survey of the in-school youth who had been issued work permits and were employed during the summer. It found that in excess of 2,500 in-school youth were gainfully employed in San Diego business and industry during the summer and that better than 60 per cent of those would remain part-time on their jobs,

after school started. This evidence impressed upon the work-experience committee the necessity for setting up a carefully developed and organized plan to be adopted throughout the school system.

The program, as developed, included:

1. A statement that work-experience is not to be separate from the regular school program but is to be made a vital part of it, serving the purpose of enriching and improving the educational outcomes of the secondary school. Each member of the secondary school has a responsibility in seeing to it that the program is successful and attains desired results. The program has definite connotations for each classroom in standards of personal excellence and sharing responsibility for the welfare of home, school, and community and in stimulating each student from the first grade through the high school to carry not only his school work but additional responsibilities in the community.

2. A central Junior Employment Service located in the San Diego High School building and organized in cooperation with the United States Employment Service. This office is to be responsible for: soliciting and referring jobs to the secondary schools, issuing work permits, investigating work conditions and hours and approving of jobs, taking job applications, keeping records and making reports on all placements, and keeping all secondary schools informed through bulletins on placements, job opportunities, child labor laws, and any other information of value.

3. Appointment of one person in each secondary school who is responsible in his schools for the work-experience program. This person is to receive all calls from the Junior Employment Service, select students for the jobs, make referrals, keep necessary records, make necessary reports, and, in general, supervise the entire program in the school.

4. Appointment in each school of a work-experience evaluating committee, chairman of this committee to be the person referred to above. This committee is to collect and disseminate to teachers, parents, and pupils complete information regarding work opportunities and work-experience and is to further the program within its school, being responsible for developing adequate supervision of students on the job. The committee will serve as an evaluating committee in allowing credit toward graduation for work-experience.

5. A statement of general policy with reference to high school graduation. One high school credit will be allowed toward graduation for satisfactory work-experience each semester in Grades 9 through 11. A maximum of six credits out of the 32 required for graduation may be allowed for work-experience, and any variation from this must be approved by the principal on the recommendation of the evaluating committee. Credit for work-experience may be granted on the basis of the following criteria:

a. The job must have educational value and vocational significance for the individual.

b. The pupil must undertake and complete successful and continuous job-experience in accordance with his ability.

c. The pupil must present evidence from his employer of success on the job. It is desirable that the school counselor establish contact with the employer regarding the pupil.

d. The job must offer a wholesome environment and opportunities for the pupil's growth.

Youth Planning in Modesto City Schools

By J. H. BRADLEY

THE ability of American society to survive the present world crisis unquestionably depends on the degree to which we mobilize our total physical and

human resources and manage both effectively. This is the task of planning.

Planning is not done with a crystal ball. No genius in Washington can hope to plan alone effectively for American survival. Planning is basically the responsibility of great men and women in all the cities and towns of America.

Planning, of course, must take place on national, regional, and local levels. National planning will succeed to the extent that it is an outgrowth and an expression of local planning.

We in Modesto believe that we have the capacity to perform our function in a planning society.

Throughout the State and Nation recently there has been wide recognition of the need for youth planning in terms of total mobilization and in terms of military and industrial demobilization.

Perhaps the two greatest national influences in this connection have been the American Youth Commission and the Educational Policies Commission. In California last April the Association of Secondary School Principals appointed a youth planning committee. Last September this committee held a three-day conference at Stanford University, a conference representing collaboration between secondary school principals, city and county superintendents of schools, and representatives of the National Youth Administration, the Civilian Conservation Corps, business, labor, and other agencies within the State interested in youth planning. From the conference came a recommendation that youth planning groups be established in various local communities and that the work of these groups be coordinated on a state-wide basis.

The Modesto superintendent of schools, having participated in the September meeting, returned to talk with local leaders in government, the judiciary, the church, agriculture, business, industry, and with youth themselves. He found everywhere a sensitivity to the need for planning, a desire for leadership, and a willingness to work if some reasonable proposal was made.

It gradually became clear to all of us that if a community is to plan effectively it must concentrate on a relatively specific phase of the vast and complex problems of youth. By December we were agreed that the most logical planning medium would be the need of every youth of secondary school age for an adequate work-experience. Around this need we decided to mobilize Modesto in the service of youth.

The following people, therefore, were invited to our first meeting: the superintendent of schools, chairman of the draft board, the mayor, the chairman of the Board of Supervisors, the manager of the public employment service, a representative of all the Department of Agriculture agencies, the president of the farm bureau, the president of the P.-T. A., the president of the interdenominational brotherhood, the president of the Chamber of Commerce, the president of the coördinating council, a representative of various women's organizations, a youth representing high school and junior college student bodies and young farmer organizations, key members of high school and junior college faculties, the NYA area student work officer, the director of the county welfare department, the librarian, a Catholic and a Protestant clergyman, a judge of the Superior Court, and a representative of labor, press, and radio.

In an effort to take advantage of the best possible leadership, we invited Dr. William R. Odell of Oakland to serve as conference leader at this first meeting. At this meeting we had our first roundtable discussion of planning techniques and objectives and of the place of work-experience in the secondary school curriculum.

The meeting resulted in the appointment of a steering committee consisting of the superintendent of schools, the NYA area student work officer, and vice-principals of high school and junior college. During December this steering committee had additional personnel and group conferences and used a questionnaire to secure a further crystallization of thinking.

A second and somewhat expanded group was called together in January. This meeting, under the leadership of Dr. Aubrey Douglass, chief of the Division of Secondary Education in the State Department of Education, reached the following conclusions:

1. The present high school and junior college students, in general, need to be thoroughly and effectively taught the fundamentals as found in the present school courses, giving especial attention (a) to training for effective citizenship and (b) to those fundamentals that have a direct relationship to the performance of skills on the jobs or positions the students will hold after graduation.

2. The best work-experience that high school or junior college students can have is a real job with appropriate wages. The conference group recognizes that there are not present in the community a sufficient number of jobs of this nature to provide opportunities for all youth who are in need of them.

3. When regular jobs with wages cannot be provided, the next best opportunity for work-experience for our youth lies in placing them for a limited time in a coöperative assignment.

4. Work-experience can serve either or both of two major purposes in the education of our youth: (a) to enable them to acquire correct work habits, respect for the dignity of work, and understanding or relationships among workers and (b) to help them make an intelligent choice of a vocation for life.

At this meeting a committee was appointed to survey student needs for work-experience. This committee contained junior college and high school counselors, coöperative part-time coördinators, a representative of the labor council, a farm bureau representative, a businessman, a clergyman, and several other participants. The committee prepared a questionnaire on work-experience which was submitted to every junior college student and which was given each student in the eleventh and twelfth grades at the high school.

At the February meeting, the committee in charge of the survey of work-experience of eleventh and twelfth grades and of freshman and sophomore grades of the junior college gave a most illuminating and challenging report. The conclusions of the Planning Group from these data led them to undertake (a) an April meeting for formulation of a permanent organization of the Planning Group and (b) to provide full-time leadership and a plan for expanding and carrying out the program for work-experience for high school and junior college students in this community to meet the growing opportunities offered by the labor shortage.

Survey of Work–Experience in Stockton High

By J. H. CAVE

RECOGNIZING the need of revising the present secondary school system the better to meet the demands of society and to prepare the students for their work in society, a committee was organized in Stockton in September, 1941, to assume a very small part in this great revision task. This committee made a local survey of the work-experience possibilities in the Stockton High School and submitted to the Board of Education a comprehensive report with descriptions of many jobs and the results obtained.

We found this the right time for action. Hundreds of administrators in high schools have been enjoying an almost novel experience since the speed-up of the war effort; local businesses and even large industrial organizations have been coming to schools, seeking employable youth to take the places of those leaving for the armed forces or for more lucrative positions. This need on the part of business will grow with every passing month that finds this country engaged in the world-wide struggle for freedom. And with this growing need of business will surely come their ever-increasing willingness to coöperate with the schools, to assist them in their planning, and to give expert advice in building work-experience programs. For those who believe in the efficacy and soundness of a school work program for youth, this very fact would seem to indicate the present to be a most opportune time to begin serious study and work on such in this field.

We found we must plan for the future. We must not meet the temporary demands of the community and nation only, but we must look forward to the post-war period and assist youth to find a productive place in the world of tomorrow. The first problem is to help win the war. This means the immediate expansion of work-experience programs. Attention must now be focused on preparing our youth for specific job areas and opportunities. But also a work-experience program must include plans to meet the possible economic collapse which almost inevitably follows war.

As objectives for our program we set down the following: (1) any useful work-experience should offer an opportunity for technical training and at the same time be correlated with the academic work; (2) human resources must be conserved and improved; (3) the plan should look toward the improvement of society in terms of better health, nutrition, housing, and recreation; (4) assistance in the form of work for pay must be provided to needy students; and (5) a work-experience program must assist in the development of better citizenship.

In making the actual survey, each member of the faculty, administration, and office staffs was asked to write a job description of whatever types of activities were being engaged in by students under his or her supervision. The form for the job description was adopted from one developed by the Oakland schools with the assistance of Theodore Waller, formerly NYA supervisor of the central area of California. The committee evaluated these jobs and decided which were worth pay, which were to earn credits, and which were to give merits. These evaluations are tentative and the rewards will vary in each case.

We found a surprisingly large number of jobs (119) which were suitable for work-experience in the school. In many cases each type provides positions for several students. The groups into which the job descriptions were classified are as follows:

Group I: Those for which credit and some pay is given—work in biology, library, and science; laboratory assistants; editor, business managers, and assistant manager of the school weekly; garden helper; cafeteria helpers.

Group II: Those for which credit is given—work in library; clerical jobs; bookkeeping; mechanical drawing assistants; switchboard operators; and managers of athletic teams.

Group III: Those for which merits only are given—these usually serve as training for the other groups and cover a wide variety of jobs.

The students appreciate these jobs and are eager for them. They report they find this in-school work-experience very helpful in the obtaining and filling of positions after graduation.

As a result of this survey, the com-

mittee recommended that a coördinator should be appointed to have full control over the work-experience program of the school district and that his duties should include the scheduling, evaluating, and supervising of all student work.

Specifically, the coördinator is to be responsible for selecting students for work, for carrying on an effective public relations program, and for stimulating in-service training of all personnel assisting in the program. He should, the committee recommends, seek coöperation of all youth agencies and direct a continuous study of community needs, revising the program to meet changing demands.

We recommended also (1) appointment of a community advisory council, including representatives from labor, agriculture, industry, business, the professions, and service organizations and (2) a cumulative card system in which is to be kept a complete record of each student's work-experience as a basis for recommendation to future jobs.

San Francisco Program Includes Work–Experience

◀ By ALBERT D. GRAVES

THREE definite steps have been taken in the San Francisco Public Schools to include work-experience as a part of the general education program:

1. Proposed graduation requirements which have been worked out by a committee of high school principals under the leadership of E. J. Cummings, principal of George Washington High School, include the principles for granting credit toward graduation for work-experience.

2. In a program for *Mobilizing San Francisco Youth* (published by the San Francisco Schools, July, 1942), those work-experiences which are being carried out in school and are a part of the war effort are organized for all San Francisco junior and senior high schools.

3. A new cumulative record folder is being prepared for use in Grades 1 to 12 which provides for a record of work-experience as a part of each child's record of total school experiences from ages 6 to 18.

The proposed revision of graduation requirements is being reviewed at the present time by all principals.

The program described in *Mobilizing San Francisco Youth* is the crystallization of a year's work with the war effort and has been worked out by about 125 principals and teachers on various curricular and work-experience activities connected with the emergency. Besides dealing with certain aspects of child welfare such as emotional problems associated with war and besides suggesting necessary modifications of the curriculum in the fields of family life, science, social studies, the language arts, Pan-American relations, and vocational education, this publication will be used as a handbook for those work-experiences that at present are so important in the war effort.

These latter include the manufacture for the Red Cross and other agencies of emergency equipment such as crutches, bed tables, stretchers, imitation bombs, operating tables, and a hundred other items. They include also messenger service, farm and cannery labor, fire watching, preparation of books for the armed forces, taking care of children for mothers who are in war work, selling war bonds and stamps, salvaging materials, stretcher bearing, and a multitude of other tasks. Students enter into these with a great deal of enthusiasm and interest. The handbook will serve as a basis for further organization.

The new cumulative record card assumes that all work-experience inside

or outside the supervision of the school is important as a basis for vocational guidance and training. Space is provided for accumulating a considerable amount of data—including interests, miscellaneous experiences, formal work-experience for credit, future plans, test records, and particular abilities or idiosyncracies.

San Francisco is making plans for the careful study and evaluation of the work-experience program and its relationship to the total school situation. The steps outlined above are preliminary to an active development in this field.

Work–Experience and War Effort in Los Angeles

By MAURICE G. BLAIR

THE Los Angeles City Schools have not only endorsed student work and service experience, but they have recognized the value of work and service in the educational program by giving credit and recognition for systematic and thorough participation in such experiences. No longer are we concerned with the question of giving credit and pay for the same work or service; we base the granting of credit or recognition on the nature of the activity and the contribution which is made. Many of our schools now are using a record card for work-experience and service recognition. This card is in addition to the regular report card, and the basis for recording credit or recognition is as follows:

1. *Work-experience* to receive credit must be systematic and thorough and of such amounts or lengths of time as to be of positive value under proper supervision; it must be based on two hours of work for one hour of credit.

2. *Service recognition* to be recorded on the student record card must involve services contributed to school and community betterment.

Experiences and activities outside of the formal classroom, when properly supervised and related to the educational program, are equally as important and worth-while as academic studies. And the war emergency has given added emphasis to work-experience and its place and relationship in the life of our boys and girls. The school and the educational program are under a cross fire between work and war effort. Intelligent and farsighted planning and direction by those in charge are necessary to guide youth in his service to his country and to himself. *Education* and *work* in times of peace have a positive correlation to *precision* and *production* in time of war. In education, our skill, our knowledge, and even our attitudes must become more precise in times of war. And in our work, our time, our efforts, our energies must produce useful, urgent, and vital commodities and service.

On the Target, a recent publication of the Los Angeles City Schools, directs attention to some of the pertinent implications pertaining to work-experience and its relation to the war effort for junior and senior high school students. In fact, these implications with some slight modification are pertinent to all levels—kindergarten, elementary, junior and senior high school, and junior college.

This booklet, *On the Target,* was developed for the purpose of furnishing a basis for desirable modification of instruction and reorganization of our schools in keeping with the needs of the war emergency. It serves as a guide to point the way, direct our effort, and coördinate our energies to the total war program.

The major objective of the Los Angeles City Schools at the present time is to gear our program and total effort to the winning of the war.

We must *utilize* every resource and agency;

Conserve materials, men, and machines;

Coördinate and direct every effort;

Maintain a continuous program;

Sustain morale;

Fight with everything at our command.

Manpower must be conserved and coordinated to produce the materials of war. It must be an intelligent manpower. Youth must be trained and must work at the same time. Schools must so adjust their programs that both may be served. *Work-experience, production, credit,* and *service* go hand in hand.

A summary of some of the pertinent implications of the war effort for secondary schools gives particular emphasis to the work-experience phase of youth participation.

Select not only that which is important but also that which is of first importance.

Adjust program and services to a twenty-four hour day when necessary.

Lengthen school day and allow pupils to elect practical courses during free periods.

Make every free period a work period in a practical, skilled activity.

Arrange the program of classes to facilitate morning or afternoon work outside of school.

Permit and encourage part-time work.

Give credit and recognition for work outside the classroom and school.

Advise pupils to stay in school as long as may be consistent with the education and training essential to service in industry and the armed forces.

Train boys and girls for war industries, civilian defense, and military service.

Increase the vocational, industrial, and practical arts offerings for all pupils.

Coördinate work and service activities in civilian defense with community activities.

The italicized objectives, as stated in the foregoing summary, call particular attention to work-experience and service. Adjustments in our educational program in keeping with these objectives are of value and importance to the individual, the schools, industry, and in the service of our country.

In the present war emergency program, the demand for boys and girls in defense industry and in other industrial and commercial fields is such that the schools must make every effort to gear their offerings and opportunities in such manner as to coördinate work and educational experiences. The schools must offer classes and instruction at such time that students may attend school in the morning and work in the afternoon, or vice versa. In many cases, subject of course to the approval and coöperation of employers, two students may be assigned to one job, alternating their work and their school activities. The legality of state aid (average daily attendance) in situations where students are not able to attend school for the full minimum day of 240 minutes cannot be questioned when these students are working on a job under proper supervision, by the school authorities. No difficulties should be anticipated if the employer is appreciative of the program.

The schools are ready to do their part and are willing to make every adjustment in order to facilitate a work and learning experience both in and out of school. Labor and industry as never before are in a situation that demands recognition of permanent values involved in part-time work, double assignments (two students for one job), and supervision on the part of school authorities. This may require considerable reorganization in schools, and certainly some adjustment in business, but we are sure that it will be of value to both industry and the schools and certainly the experience will be most valuable to the students so participating.

An Experiment with a Core-Curriculum

By JESSE B. DAVIS

This out-of-state contribution describes a core-curriculum on the junior college level conducted by the Boston University School of Education. Five years of experience with this experiment have convinced the writer of this article that the program is most satisfactory.

Dr. Davis, who retired as dean of the School of Education at the end of the 1941-42 school year, is administrative assistant to the president of Boston University. He is widely known in the field of secondary education, having been a member of such important bodies as the Commission on Reorganization of Secondary Education, the Committee on Research in Secondary Education, and the Committee on Coördination of Secondary Education; he has participated in such national programs as the Coöperative Study of Secondary School Standards and is the author of "Vocational and Moral Guidance." Besides his eighteen years as professor of education and dean of the School of Education at Boston, he taught in the Detroit Central High School for twelve years, was principal of the Grand Rapids Central High School and president of the Grand Rapids Junior College for six and thirteen years respectively, and served as state supervisor of schools in Connecticut for four years.

FIVE years ago Boston University School of Education began an experiment at the junior college level called the Two-Year College Curriculum. There were three problems which the faculty wished to study.

First, we planned to try out the value of aptitude and achievement tests in the selection of students for entrance to college. The only students accepted for the experiment were from those who could not meet the restricted limitations of college entrance requirements, as practiced by the New England colleges. After five years it was found that more than 50 per cent of these students, selected mainly by means of tests, proved to be of sufficient academic ability to continue for the bachelor's degree, some of them graduating with honors. The remaining group were equally successful in pursuing terminal programs for occupational life. Today, many of the traditional colleges are using these same tests in selecting students.

The second problem was in the field of guidance. By the use of further testing and other techniques, each student was adjusted in accordance with his individual needs, receiving special help in such fields as remedial reading, study habits, emotional and personality improvement. A follow-up study finds this group definitely successful in their after-school pursuits and enthusiastic regarding the guidance and education which the two-year program offered. Now these techniques are being used also more and more by junior and senior colleges in adjusting students to college work.

The third and most unique of the problems was the working out of a core-curriculum required of all students in the two-year or junior college program. This was aimed to afford a cultural background of general information essential to intelligent citizenship

taught in such a manner that it would integrate the individual as well as the subject matter involved. This course was called, for lack of a better title, American Civilization. The class met for two clock hours every day and was credited with ten hours of the sixteen required for a full program. The remaining six hours were selected under individual guidance from the offerings open to freshmen and sophomores in any of the several undergraduate colleges of the University. We even went outside of the University when suitable training was not to be found to meet the vocational plans of certain individual students.

TO give the course in American Civilization the necessary continuity and substantial backbone upon which to build the structure, we decided to use the history of the United States with emphasis upon its social and economic development. Into this outline contributions were woven carefully from the following fields: fine arts, literature, historical backgrounds, philosophy, cultures of other nations, the applications of the natural sciences to our progress, the meaning of democracy and the responsibility of our country among the nations of the world.

The ablest professors, with reputations as teachers rather than as research specialists, from all divisions of the University were invited to coöperate in the experiment. These men worked under the direction and supervision of a coördinator who was given full responsibility for the course.

It should be made clear that the success of any integrated program depends to a very large degree on the ability of the coördinator. It is not a simple matter to get college professors, who have had little or no professional training in education, to catch the vision of the educational opportunity. They are prone to resent the demand to submit their outlines of lectures to a coördinator who in their judgment is not a master of their special subject field. Nevertheless, this has to be done if integration is to be realized. It is the task of this coördinator to suggest the necessary adjustments in the contributing parts of the outline in order that a comprehensive whole may be constructed.

A study of the faculty schedule for a typical month, as presented below, will show a weekly "round-up" period. This is in charge of an "assistant" teacher or the coördinator himself who conducts a discussion period aimed definitely to bring about the integration of the subject matter presented during the week. The assistants also act as student advisers in cultivating right study habits and in promoting the integration of the individual.

The following schedule presents the topics of the twenty-three class sessions held during a typical month, October of this year. Where two topics are listed, each is scheduled for a one-hour presentation. Otherwise the two-hour period is given over to a single topic—except in the case of the trip to Salem, where an entire afternoon was needed.

A TYPICAL MONTHLY FACULTY SCHEDULE

1. European Backgrounds to American History.
   Biology in Its Relation to American Life.
2. European Backgrounds to American History.
3. European Backgrounds to American History.
4. European Backgrounds to American History.
5. Religion and Philosophy in the Colonial Period.
   Fundamental Concepts of World Affairs.
6. Trip to Salem.
7. European Backgrounds to American History.
8. European Backgrounds to American History.
9. Fine Arts in the Colonial Period.
   "Roundup."
10. Religion and Philosophy in the Colonial Period.
    Fundamental Concepts of World Affairs.

11. The Settlement of America.
    Biology in Its Relation to American Life.
12. The Nature of Geography.
    Music in the Colonial Period.
13. Literature in Colonial America.
    The Development of Provincial Society.
14. Fine Arts in the Colonial Period.
    "Roundup."
15. Religion and Philosophy in the Colonial Period.
    Fundamental Concepts of World Affairs.
16. The Settlement of America.
    Biology in Its Relation to American Life.
17. The Geography of the New England Colonies.
    Music in the Colonial Period.
18. Literature in the Colonial Period.
    The Development of Provincial Society.
19. Fine Arts in the Colonial Period.
    "Roundup."
20. Religion and Philosophy in the Colonial Period.
    The Development of Provincial Society.
21. The Settlement of America.
    Biology in Its Relation to American Life.
22. The Geography of the Middle Colonies.
    Music in the Colonial Period.
23. Literature in the Colonial Period.
    The Development of Provincial Society.

IT is impossible within the limitations of a brief article to give much of an idea of the content included under the title American Civilization covering the two-year period. This will have to be left to the imagination of the reader. A few illustrations of procedure, however, may help.

New England is peculiarly adapted to a study of the Colonial period, just as other portions of the country have their own particular opportunities. The professor of art accompanies the class on a trip to Salem, Massachusetts, to study the restored primitive village and the architecture of the beautiful colonial homes with their collections of antique furniture, silver, and glassware. The professor of geology accompanies the group on a trip to the mountains and the shores, giving them a deep impression of the meaning of the expression, "The rock-bound shores of New England," explaining the influence of the mountains in developing the character of the people and discussing the geographical implications in the growth of certain industries.

The professor of philosophy helps the student to understand the rigid, puritanical standards of those early days and their influence in the building of certain ideals in American culture. Also the professor of music interests the students in the Indian music, the hymnology of the colonists, and the later introduction of European music to American life. Likewise the professor of European history goes back as far as may be necessary to trace the backgrounds essential to a better understanding of our early culture. All of this is constantly linked up with a fuller comprehension of contemporary life.

THIS procedure carries on through the two years as the general information program for all students. After five years of experience with this experiment, we feel justified in drawing certain conclusions.

It has proved to be a most satisfactory general education to prepare the individual for intelligent citizenship, for cultural understanding and appreciation.

It has proved to be splendid preparation for the sophomore cultural background examinations given by the American Council in Education. Our students have ranked well above the median for the country. Also it is the best preparation for the National Teachers' Examinations and should be required of all students going into the profession of teaching.

Again, it is definitely in line with the trend to develop a core-curriculum for the reorganized secondary school. Steps are now under way to prepare this course in American Civilization in the form of unit assignment at the level of the senior high school to combine essential guidance information with general education.

Preparation for Aviation Cadet Training

By PHILIP M. FERGUSON

Schools of California have participated in the war effort in many ways, direct and indirect. A most direct contribution that they have made is in offering preliminary training for young men who are candidates for appointment as aviation cadets in the Air Corps. One of the most outstanding programs of this type is that of the Central Evening High School, in Los Angeles, which is described in this article. It must be noted that this article goes to press just as an end to voluntary enlistment has been announced. What effect this new policy will have on a program such as the one described herein is not yet clear.

The article is written by Captain Philip M. Ferguson, formerly principal of Central Evening High School. At present Captain Ferguson is in charge of the preflight training at Santa Ana Army Air Base. During the last war, he was a flying instructor for the U. S. Army. Later he taught, successively, in the Paola, Kansas, High School; in the Courtland Junior Union High School; and in the Lincoln High School, Los Angeles.

MORE and more as the war progresses, the increasing importance of aviation becomes evident. The airplane alone will not win the war. It is no more important than some other factors of military strength. Control of the air, however, is as essential as control of land and water in order to win a modern military victory.

In preparing for the part we must play in the world-wide conflict, the new importance of military air machines must be kept in mind. Hitherto undreamed numbers of airplanes must be built. Men must be trained to fly them.

In anticipation of this situation there was established at Central Evening High School, in October, 1940, an educational program for the purpose of increasing the supply of young men qualified to serve as pilots and officers in the Air Corps. These classes are a part of the regular adult education program of the City of Los Angeles.

A CANDIDATE for appointment as an aviation cadet in the Air Corps has to meet only three requirements. He must be a male citizen of the United States; he must be between the ages of 18 and 26, inclusive. He must pass a physical examination and also a mental examination which is referred to as an aptitude test, screening test, or preliminary test.

The screening examination is composed of 150 questions. For the most part these questions are based on vocabulary, reading comprehension, elementary arithmetic, scientific information, and current events. Correct answers to seventy-eight of the questions will qualify candidates for entry into the cadet training program. Those making a grade below seventy-eight are encouraged to enlist for ground training, a large number of courses for specialized ground duty training being available.

After passing the preliminary physical examination and the screening test, the candidate enlists as a private in the Air Corps and is assigned at once to cadet training status at a salary of $75 per month.

Following enlistment, the cadets are

sent to replacement centers (known as ground schools in 1917) for a 5-week training period. They are given the flight physical there. During this period the cadets are acquainted with military life, given inoculations, and tested as to their academic background which will have a bearing on their training as officers and pilots. It is also determined at this stage whether the cadet is best suited for pilot, navigator, or bombardier training.

THE purpose of the Los Angeles Aviation Cadet Preparatory program is to make sure that the cadet is mentally qualified to meet all the demands of the service. The content of the training course is well suggested by the following quotation from a bulletin, *Suggestions for Individuals Preparing for the Aviation Cadet Qualifying Examination,* issued by the Adjutant General's Office:

The qualifying Examination does not measure the sort of specific information or knowledge which can be gained from special education or training. It is the policy of the Air Corps to encourage men who are planning to take the test to gain as much fundamental training as possible in those studies which are related to the technical side of aviation, which prepare men for success in ground school and which develop comprehension, judgment, and leadership. Study and training along these lines will also help to prepare the individual for the qualifying examination.

The following fields of study are suggested as desirable:

1. *Science.* Study of the scientific method and of the principles of the physical sciences, especially general science, the weather, and elementary physics. Such study will make it easier for the individual to comprehend and apply principles of flight, to understand the operation of his equipment and to learn many of the special technical skills needed by the air crew. A background of general scientific information is desirable.

2. *Mathematics.* Study of mathematics, with special emphasis upon speed and accuracy in fundamental mathematical operations, algebra, trigonometry, percentages, fractions and formulas is of primary importance. Familiarity in the interpretation and use of tables, graphs, charts, and other methods of summarizing data is desirable.

3. *English.* It is necessary for the cadet to read technical material with comprehension and understanding. He must grasp the meaning of what he reads, be able to apply principles, make interpretations, and see relations to other problems. It is very desirable that he learn to read and study in this way.

4. *History.* In order to be alert to changes in the world and to understand the significance of new developments, the cadet should study current history and the background of current social and scientific progress. He should be familiar with the changes and developments in science, government, military and world affairs which it is necessary to know in order to comprehend the present world conflict and the purpose of our war effort. Such a background is desirable in the men who are to be trained as officers and leaders in the Army.

Other studies will probably be of value but are not as essential as the subjects mentioned above.

THE preparatory course at Central Evening High School consists of a 16-week training program. The first term of eight weeks includes arithmetic (12 hours), geometry (18 hours), algebra (18 hours), English (24 hours), and history (24 hours). The second term of eight weeks includes algebra (16 hours), trigonometry (32 hours), physics (32 hours), and tests (16 hours). The history course is divided into United States history, world history, current history and geography, approximately six hours each.

The program is divided into two terms of eight weeks each. The classes meet four nights per week, three hours per night. Regular homework is assigned, and students are expected to study at least twelve hours per week in addition to their class work. Regular and prompt attendance is required.

The general requirements for enrollment are as follows:

1. Qualifications under Air Corps regulations as to sex and citizenship.

2. Age of from 17 years and 8 months to 26 years and 8 months.

3. Previous high school or college experience in all subjects except physics and trigonometry.

4. A preliminary physical examination.

Most men in the 18-26 age group who have graduated from high school but have not gone to college have been engaged in occupations which do not call for the use of the knowledge needed to complete the training as an aviation cadet.

Because of disuse, a greater part of such knowledge has been forgotten; and thus a systematic program of review is necessary in order to prepare such men to pass the academic examination. This preparation, to be of lasting value, must be in the nature of education rather than cramming so as to insure comprehensiveness, understanding, and retention.

Ninety-five per cent of the men enrolled in these classes are employed. The positions they hold represent a cross section of American industry. The only large single group is made up of those working in the aviation industry. A number of the men own their own businesses, and many hold responsible executive positions.

There are quite a number of drop outs during the first few weeks of the course, but it is safe to assume that those remaining after six weeks will finish the work. Only the best qualified complete the course. They are not men who failed to attend college because of any mental deficiency.

Each class is in charge of a team of two teachers: one for mathematics and science and one for history and English, in the first term; one for mathematics and one for science, in the second term. Each teacher is required to have a Master's degree in the field in which he is teaching and also to have had actual teaching experience in his subjects.

THE Los Angeles Army Recruiting Office provides the physical examination and reports on the suitability of the candidates for cadet work. This procedure increases the efficiency of the program by eliminating those who have no chance to pass the final physical examination.

The draft boards of Los Angeles, as well as those in several other cities, have coöperated by deferring students enrolled in this program until they have taken the Air Corps examination. A letter explaining the training program and stating that the draftee is enrolled in the course is sent to the draft board of each individual enrolled.

The Aviators' Post of the American Legion of Los Angeles has coöperated in giving publicity to the program. They have aided also by writing to draft boards in support of requests for deferment.

OVER 4,000 young men took this training from October 14, 1940, to September 1, 1942. By the close of the summer session, over 1,400 men had completed the program and had been accepted by the Air Corps for cadet training.

At the present time approximately fifteen hundred men are attending classes in five Los Angeles schools. During the 1942-43 school year it is expected that this program will qualify 2,000 men for aviation cadet training.

All available information regarding the progress of these men in the Air Corps indicates that their academic record is well above the average. In a recent class finishing basic training, which is the second stage in the flying course, at Minter Field, Bakersfield, seven out of eight of the Los Angeles trained cadets exceeded the class average for all subjects taken of 80.93 while the low grade of this group was 80.

Aspects of Developmental Reading

By RUTH H. ANDERSON

READING is our business at the Kern County Union High School District, centered in Bakersfield, California. When we see students improve from being non-readers to becoming able readers of simple literature in two months, we believe that a developmental reading program deserves emphasis in our curriculum.

It has been possible to set our practical corrective reading program in action by establishing three separate types of English courses: vocational classes, regular English classes, and reading classes. In the last group, which furnishes the material of this study, only students are included who are of average or better intelligence and who still are drastically retarded in reading.

Take Robert, for example. In mathematics classes he has an A average, but in history, English, and foreign language courses he struggles by with D's and F's. In the past month he has made a reading growth of a year and a half. And he is still improving. Reading has become fun, and for the first time he feels encouraged to try to realize his dream of going to college to become an engineer.

Then there is David, who is old enough to shave but who has never had an opportunity to learn how to read. On November 7 he was a total non-reader, unable to recognize even the simplest words. By December he had learned how to read, write, and spell 500 words. In February he was enthusiastically reading a simplified version of *Lorna Doone*. With his acquired reading skill have come confidence and dignity, while negative behavior habits are dropping away.

This story of a developmental reading class is intensely interesting. And if the activities described in this article are those that are going on now that "reading is on the offensive," as Miss Anderson puts it, then we can't give too much credit to those working in this field.

Miss Anderson is an instructor of reading in the Kern County Union High School, Bakersfield. Throughout her graduate work at the University of California at Los Angeles and at the University of Southern California, she has specialized in the psychology of reading. She has been an active member of the University of California Subcommittee on Reading. This last summer she participated in a four-day reading conference at U. C. L. A.

HOW is reading growth accomplished so quickly? The answer is found in a systematic reading program which is pivoted on the three aspects of reading: vocabulary, comprehension, and speed. In striving to improve these three things, we do not confine ourselves to any one approach.

We have both extensive free reading as well as timed reading under pressure. Individual project work is fostered on the one hand, while drill activities, on the other, are not ignored. Different types of methods of learning are used to suit the student's own needs, whether his imagery type is visual, auditory, or kinaesthetic. Specific work is done in helping the pupils to improve the pattern of their eye-movements—after holding a mirror in front of each other's eyes, the pupils learn that the eyes cross

a line of print by a series of forward "jerks" and reversals or saccadic jumps.

At the beginning of the year Carl made fourteen eye pauses to each line of easy printed matter. Before working with flash cards, with the metronome, or reading in time with musical rhythm to decrease his number of eye stops, Carl contrasted his own ability with that of an expert. Since Theodore Roosevelt was able to encompass four lines with a single eye-movement, Carl figured that it took him fifty-six times as long as it did T. R. to read the same amount of material. This study of eye-fixations was motivated by the knowledge that had not Roosevelt developed this fine skill he would never have been able, despite his terrific energy, to accomplish all that he did in one lifetime.

At the end of the year Carl took on the average of four eye-jumps to the line and increased his reading speed from 70 to 250 words per minute. It is interesting to note that a skin rash, diagnosed as caused by nervousness, disappeared within this time.

To increase their vocabularies the students write words new to them in their own alphabetical "dictionaries." Instead of composing a definition of the word, they use it in a sentence.

Since poor readers often are poor spellers, we spend three days a week studying spelling. The Buckingham Extension of the Ayres Spelling Scale is used as a basis of this work because its 1,000 words comprise 75 per cent of the words found in print, whether the material be journalistic, scientific, or literary in nature. If the student learns forty-five words a week, we find that at the end of the semester he has mastered almost 900 words.

Many students have been forced into poor spelling habits by being urged to write words before they know them. To counteract this, the students become familiar with a new theory of spelling—our creed is that we don't spell words, we write them. In experiencing the word the student does four things: (1) he looks at the word and hears it pronounced correctly; (2) he says it silently to himself; (3) he closes his eyes to get a visual image of the word or kinaesthetically traces it several times; and (4) he writes the word without copying it two or three times. The student learns to spell a word by looking at it, hearing it, writing it, and saying it. As one student said, "We do everything but smell it."

READING for speed and comprehension is handled in a slightly different method. Several times a week the student reads for a short period up to the limit of his endurance and records the results of his effort on two separate speed and comprehension charts. The learning drive is capitalized on when each student feels a real thrill in measuring his own reading progress. At the beginning of the semester most students have an all-round fifth-grade reading ability and read between 90 and 150 words per minute. At the end of the semester they cover between 300 and 450 words in the same time. In the reading class it is unusual if the students' reading rate doesn't double or triple itself.

The use of the flash card is one of the most important of the simpler devices that we use for improving reading skill. While one student reads, his partner flashes a brief exposure of a line of print before covering it again with an index card. When the line is recovered, the reader recalls as much as he can of what has been read. It is well if, to begin with, the student can cover one line with four to six exposures. The flash should not exceed one-seventh of a second. This exercise should not last longer than ten minutes at a time.

It was this flash card device more than any other that helped to uncover Ray's true reading ability. In one semester he came from a low sixth grade reading skill up to that of an average ninth grader. His comprehension improved to that of a junior in high school. At the end of the term he said, "Gee, Miss Anderson, this proves, doesn't it, that I'm not really dumb?" His IQ was later revealed as 135.

Another eye-span trick which tests how much material your eye can photograph in one movement is the peep-hole test. Punch a small hole about the size of a dime in the middle of a magazine page. As one student silently reads the article, the other who is looking through the peep-hole counts the number of eye-movements made to a single line.

These devices, as well as frequent testing, all form a part in an effective reading program. After determining the general reading level of the class at the beginning of the semester, we divide the room into three groups to facilitate more individual attention. As far as possible the student selects his own books, his choice being based on his vocational or avocational interests.

WHATEVER the textbook and whatever the methods of learning used, the most important commandment of all is to follow religiously a systematic schedule. Below is one which we have found to be practical.

Monday

1. Fifteen spelling words.
2. Flash card work.
3. Practice in correlated written activities: writing summaries, newspaper headlines, captions for book sections, blurbs for magazine articles and books, supplying topic sentences, creative writing, composing cablegrams, selecting key words, et cetera.
4. Study period on the individual project or work contract for the week.

Tuesday

1. Fifteen spelling words.
2. Flash card work.
3. Practice in various types of reading in different school subjects for special ideas, facts, skimming, comprehension, and pure pleasure.
4. Study period.

Wednesday

1. Fifteen spelling words.
2. Speed and comprehension test.
3. Novelty comprehension or speed tests such as: spacing eye movements to fit in with the beat of a metronome; reading to the rhythm of music; distraction tests of reading with and without chewing gum to note the resultant difference in speed and comprehension; glancing at a stamp or a picture to observe as many articles as possible and then rechecking this list; et cetera.
4. Study period.

Thursday

1. Copious free reading all period in the school library so that students may develop more advanced word concepts. Thirty pupils read over 300 novels in one semester.

Friday

1. Spelling test.
2. Oral activities related to reading: making a "Vox Pop" radio program in reporting on favorite books, dramatization of scenes in books, participation in panel discussions for points of interest in reading work, et cetera.
3. Remainder of the period used in free reading.

WITH this reading program we have seen students make an average stride of one and a half to two years in one semester's training, while many individual cases have made far greater gains. From our experience we know that this program has benefited poor students who were total non-readers, below average, average, and superior students alike. We know that there is much to be learned about reading and that we are only humbly scratching the surface of this mighty problem. But when education plays such an important part in a democracy, we realize that reading is one of the ramparts for us to watch. Today reading is on the offensive.

What About Driver Training In California?

By O. A. ENGSTROM

"There is an appalling lag in driver training in Western schools," writes the author of this article, "and the eleven Western states, headed by California, always rank highest on the national list of accident rates."

In view of this statement, it would seem indicated that there is a need for the schools to accept the responsibility of doing something to educate drivers. Mr. Engstrom's article points out what is being done in other sections of the country and describes the accepted methods for instructing in this area.

Mr. Engstrom teaches science and social studies at Clark Junior High School, Glendale. He has made an educational hobby of safety education and at present is chairman of the Safety Education Committee for the Glendale schools.

ONE of the most neglected phases of safety education in California schools is driver training. Our schools have hardly touched on this important aspect of community life, even though increasing accident rates due to the speedup in our defense program make the need for this training more imperative than ever.

Driver training is not a new field in the high schools of the nation. The city of Gilbert, Minnesota, offered this type of course as early as 1921. It was not until the early and middle thirties, however, that the movement actually began to receive an encouraging national response. Such representative cities as Spokane, Chicago, New York, and Evanston lead the nation in offering actual driver training facilities to their pupils.

Frank W. Hubbard, research director of the National Education Association, claims that more than 600 high schools are engaged actively in teaching some form of automobile driving and that about 8,000 schools include some traffic safety work in their curricula. New Mexico recently conducted an extensive state-wide campaign in this field under the direct authority of the State itself. Pennsylvania has done likewise. After several years of experimentation Illinois, Georgia, and Rhode Island are setting the pace for the nation in pupil training for driving.

In some states the teaching of traffic safety and automobile driving has become mandatory. Indiana requires twenty hours of instruction before a pupil may graduate from high school. New York and Chicago also have made driver instruction compulsory in the schools. Back in 1936, far-seeing educators in New Hampshire made such a course obligatory. The aim of many school officials seems to be that eventually no drivers' licenses shall be issued to pupils who have not first obtained satisfactory certificates in driving from their high school instructors.

These facts seem to point to a definite trend toward nationalizing this field of safety education in much the same manner as health training has been nationalized. Where does the California educational system fit into our proposal? The facts show that we have offered virtually nothing in our schools relating to active driver education.

Californians own almost 3,000,000 cars—more than there are in any other state. But this record is accompanied by a correspondingly high accident rate. In 1940, the last year for which conclusive figures are available, the death rate per 100,000 population in California was 42.4, while in New York, for example, it was 18.2. More conclusive figures are unnecessary to show that we have failed to keep stride with the safe driving practices exercised elsewhere.

SOME sources estimate that within two years after graduation from high school 65 per cent of all graduates will spend at least an hour a day behind the wheel of an automobile. Many methods of training these young neophytes have been employed in high schools, but two methods are outstanding.

The first of these was devised by Dr. Amos Neyhart of Pennsylvania State College and is the most widely known. Dr. Neyhart uses the dual-control car system and believes that this method helps to ingrain in the student, through practice, a pattern of driving habits and skills which become part of the individual's driving makeup. Dual-control cars have controls (gearshift, brake, et cetera) for both the driver and the instructor. The pupil is taken first to a fenced-off area which has been laid out with mock streets; here the learner gets the "feel of the wheel." After this initial training period, the pupil and his instructor drive together on the regular highways and streets of the city.

The second method was popularized by William A. Sears of Lane Technical High School in Chicago. Mr. Sears employs a set of dummy cars, the controls of which are rigged up intricately with a panel of lights in front of the classroom. This system allows the instructor to check at a glance the various faults of the student drivers. Work begins with seven one-hour preliminary sessions during which the young people are taught posture, proper vision, placing of hands, and so on. Motion pictures simulating actual road conditions are then projected on a large screen in front of the class. This device, Mr. Sears claims, eliminates the general hazards of driving in everyday traffic. When the novice passes these preliminaries he is permitted to use the school driving range.

Both methods used by these instructors have gained national recognition. Dr. Neyhart asserts that his system gives the pupil actual driving experience from the start, while Mr. Sears believes his preliminary tryout to be the more helpful. Both plans, however, have been eminently successful. In Rhode Island, for instance, a follow-up on 1,027 boys and girls was made three years after their initial training. The results showed that not one had been involved in a reportable accident or convicted of any minor traffic offense. Follow-ups were made also by Dr. Neyhart among his former students who had had at least 20,000 miles on the road. He was rewarded by the same encouraging results found by the Rhode Island educators.

The expense involved in training young drivers need not be prohibitive. Supt. G. D. Morse of Saugerties, New York, explains that the cost per pupil, aside from the instructor's salary, averages about $4.50 per year for every hundred pupils. This includes all types of insurance, materials and upkeep on cars, dual-control facilities, and other similar items. Other school systems have cut the costs considerably below this when, for example, automobiles are donated or loaned, and when the services of members of community organizations are utilized in place of the time of an instructor. Consequently, it is difficult to support any argument from those who claim that driver training is financially impractical.

Education in the Relocation Centers

By LUCY WILCOX ADAMS

One of the most interesting mass evacuations of civilians in history is the transfer to War Relocation Centers from the Pacific Coast area of 115,000 alien Japanese and citizens of Japanese ancestry. California school people particularly are interested in the evacuation, not only because they have an interest in the thousands of Japanese youngsters who once were in their schools but also because they are aware of the dislocation in certain vocational areas that has resulted from the withdrawal of Japanese workers. Accordingly, there should be considerable interest in this account of how the schools are planning to educate those in the Relocation Centers for jobs and of how they are helping the Japanese to find a place for themselves in the industrial life of the country.

Mrs. Adams, who writes the article, is director of education and recreation in the San Francisco regional office of the War Relocation Authority. Formerly she was superintendent of Indian Education in the Navajo Reservation. She has also been chief of the Community Services Branch of the Office of Indian Affairs, Washington, D. C.

WITHIN the past five months ten cities of from ten to twenty thousand persons, including men, women, and children, have been created by government order. On lands which in many cases have never known the plow and on which few if any people have ever lived, there now are populous communities with the beginnings of large agricultural operations, stores, factories, community enterprises of many kinds; with local self-government, courts and police force, community schools, churches, and organizations of all sorts. These are the Relocation Centers to which alien Japanese and citizens of Japanese ancestry to the number of 115,000, who were moved from the Pacific Coast area, have been transferred.

These cities were conceived of as becoming rapidly self-supporting, raising most of their own foodstuffs, providing to a large extent their own services, operating their own enterprises, manufacturing many of their own goods, and at the same time contributing to the program of war production and providing a reservoir of labor which can be drawn on to assist other communities outside the military areas.

Among the important considerations governing the choice of sites for these new cities was the requirement that the area must provide work opportunities throughout most of the year for the people relocated there. The types of work stressed were three: (a) the development of land through irrigation, conservation of soil resources, flood control operations, and range control; (b) agricultural production of foodstuffs required by the new colony, and aid in the Food for Freedom program; (c) the manufacturing of goods requiring skilled hand labor, including the products needed by the new community and in the national production program, as well as for use by the armed forces.

A beginning in all these fields has been made at the centers: land subjugation is proceeding rapidly at some; others already are producing a part of

their own food; factories are under construction; the making of camouflage nets for the army is a considerable industry; a number of workers are on work furloughs engaged in private employment in the beet fields and other harvest operations.

THE creation of a self-governing, self-supporting community out of a great assembly of persons drawn suddenly from their homes and their normal occupations is a tremendous task.

The responsibility, as well as the opportunity, of the schools in training for community living, is greater here than in most communities, partly because the patterns of living in the centers are still being formulated, partly because so disproportionately large a number of the population are of school age due to the influence of the Japanese Exclusion Act on the birth rates—the largest group in the centers is the 15-20 age group, while the group from 25-45, which in a normal American community carries the major economic responsibility, and is very large, is in these communities the smallest in number.

The school program in all the centers is gearing itself to make its maximum contribution to community building. Two important forms which this will take will be (a) to assign to the schools definite responsibilities in the production, maintenance, and operation program on the projects, giving them the land, machinery, supplies, and equipment necessary to carry this out; and (b) to utilize and organize the work opportunities provided on the project for the vocational training of students and to recognize work-experience as an important part of the school curriculum.

School enterprises carried on by students will be directly related to project needs. They may include, in the field of food production, a share in such activities as poultry raising, beekeeping, dairying, hog raising, and small specialty crops; they may be research and recording jobs, or they may provide definite responsibilities for construction and maintenance. Experience in these school enterprises will be provided for all grade levels. It will give training in a large number of skills needed on the project and will serve as a guide in the choice of a vocation. The project itself will be the major textbook and provide an important part of the learning material.

In the vocational training field the schools will go directly to the projects. War priorities, scarcities, and lack of funds make it impossible to set up in the schools themselves the shops and laboratories necessary to provide adequate training, and it is only through utilizing the work opportunities of the offices, enterprises, institutions, and services of the project on an apprentice training basis that anything like adequate vocational training can be given.

The regulations under which the schools will operate provide, therefore, that high school students above 16 specializing in certain vocational fields may, under the direction of the superintendent of education, spend one-half their time in apprentice training or work-experience on project enterprises during the regular school year. For this they will receive credit toward graduation. These students are eligible for pay and for membership in the work corps. The fact that the schools are operated on a year-round basis makes it possible for all students including those studying for college entrance to take some vocational training, and this fact will be recognized in graduation requirements.

THE projects are too new as yet for us to say in what direction the vocational training program will develop, and they will of course differ at each center; but some of the plans now being

made are in the following fields:

1. *Pre-nursing training in connection with the hospitals and medical program:* This is a field in which there is a marked shortage of workers. It is also one into which the evacuees have gone in some numbers in the past and have been successful, one which provides opportunities for finding work outside the projects.

2. *Training in trades connected with restaurant and hotel operation:* Mass feeding in the centers and the construction of a number of dormitories for employees provide excellent opportunities for training in this field in which formerly a number of evacuees have been engaged. Plans are now being made to set this up as a major vocational training field, using the mess halls and dormitories on the projects to provide laboratories and work-experience.

3. *Manufacturing:* Factories for the production of much of the furniture and for the clothing, especially the work clothing, needed on the projects are now being constructed. It is planned to use these as centers for training in carpentry, wood working, cabinet making, dress design, and so on and to extend opportunities to upper grade high school students. An art school will provide training in textile, furniture, and dress design, as well as in drafting, architectural drawing, and other allied skills needed for enterprises being developed on the projects.

4. *Auto mechanics and the repair and maintenance of machinery:* This is a field in which comparatively few evacuees are skilled, one which calls for the immediate training of a number of workers. Many of the trainees probably will be taken from the older high school group. The training will be provided in the shops on the project and, after a brief preliminary training course, will be conducted on an apprentice basis.

This does not begin to exhaust the opportunities for training on the job which will open up as the centers develop. The training in agriculture will be provided largely through directed work-experience; the same will be true in animal husbandry, in many trades such as plumbing, in the building and electrical trades, in merchandising, marketing, office work, and in a number of preprofessional fields.

OF course it will take experience and patience to tie the apprentice training and work-experience program into the rest of the school curriculum so as to extract its full educational value and to create the necessary understanding between school personnel and those directing and operating the various enterprises and activities on the projects, but project leaders realize that the success of the projects and the individual success of students in meeting the problems raised by relocation and later by return to normal channels of American life depend largely on the skill with which school training and that provided by activities on the projects are integrated.

It should be noted that the growing demand for workers to replace those being absorbed in the armed forces and in defense industries is opening the way now for the long-term employment away from the projects of many citizens of Japanese ancestry. As these individuals find jobs and are cleared by the FBI, they will be free to settle outside military areas—at present a large proportion of these work opportunities are in the fields of domestic service, care of children, general farming, and office work. The schools are endeavoring to use the work opportunities on the relocation projects as training centers to provide labor replacements from the ranks of those of Japanese ancestry and so to gear the projects into the general employment needs of the country.

Safeguarding the Health of The Teacher

By EARL COLEMAN

What Dr. Coleman lists as his chief interest for the past few years—"to make the candidate teacher a fit physical specimen, capable of instilling health into her youthful charges by precept and example"—has motivated preparation of this manuscript.

Dr. Coleman was in private practice from 1911 to 1926, when he joined the staff of the Fresno County Health Department and was placed in charge of the health program of the county schools. In 1927 he went into the Fresno City Schools as director of health and physical education. He went to Fresno State College in 1929 and has been there ever since as director of health and associate professor of physical education.

GENERALLY speaking, the health of the teacher is good. The insurance companies list teachers as a Class A risk for health and accident insurance. The death rate is about the lowest for any occupation, and a teacher's absence from work is about half of that from any like profession that has been studied.

This does not mean, however, that we need not concern ourselves with the teacher's health. In fact a chief concern of teacher training institutions and of school administrators is to weed out the physically unfit from training programs and from original appointment to positions and then to assure that healthy teachers stay healthy after beginning to teach.

Most cities and an increasingly large number of smaller communities are requiring a health examination of all candidate teachers, which must be made by a doctor of the school. This comes from a desire to protect the student and has little or nothing to do with the welfare of the teacher.

The State of California has a standard of perfection which all must meet before being granted teaching credentials, and new regulations are added from time to time to increase the efficiency. Now anyone applying for credentials must have a health certificate from or be examined by a physician who is associated with a teacher-training institution. This we hope will put all those coming from outside the State on the same basis as our own students. It is supposed that such a physician has a better understanding of just what a teacher's physical qualifications should be—or, rather, that he will recognize those defects that would make her undesirable for teaching.

All of our teacher-training institutions are doing a good job, not only in turning out physically acceptable teachers, but in eliminating the undesirable early in their school life and thereby saving both the school and the students a lot of valuable time. The rejected students thus are led to train for some occupation in which they will be acceptable and in which they have a chance to get a job.

There are many who may argue that teaching ability is independent of physical condition, and they will proceed to cite many examples to sustain their point. But exceptions should not make rules. We have known of people so badly crippled that they were confined

to a wheel chair, yet they had the ability of a genius to impart their knowledge to others. But they would hardly do as elementary teachers. All of the physical causes for rejection of a teacher which have been accepted by the State have been carefully considered and proved to be justified.

ONE phase of teacher health which is most important is still a very fertile field for research. That has to do with the teacher who is unstable emotionally. How can we prevent emotional explosions? Can they be prognosticated? Can the symptoms of instability be detected during the training period? If so, how?

That emotional upsets are important may be judged from the replies from some 300 elementary principals to a questionnaire seeking the causes of unsatisfactory teaching. Seventy-five per cent replied that emotional instability is, by far, the leading cause and that they have no solution for it. Some of their teachers cannot get along either with pupils or fellow workers; others are "cranks," "weepers," liars, and fanatics. In fact, their diagnosis runs the gamut of a psychiatrist's vocabulary.

Is it possible to detect such tendencies in a college student? There is a very interesting study now being made at San Diego State College under the sponsorship of the National Committee for Mental Hygiene. Members of the San Diego faculty, with the help of Dr. Forrest Anderson, a Los Angeles psychologist, are examining numbers of student-teachers and then will watch their work after they get into active practice. If diagnosis and prognostications correlate with later developments San Diego may have something worth-while to help solve this big problem.

Let us assume that we can make certain that everyone starting out in the teaching profession is a perfect specimen or a reasonable facsimile thereof. Will they remain so without further effort? We all know that they will not. Well, what can be done about it? Or is it like the weather, to be talked about, cussed, and forgotten? Whose job is it anyway?

First and by far the most important factor in controlling the situation is what the teacher is going to do about it herself. Above all else it is her job to keep herself physically and mentally fit. If her knowledge of personal hygiene is not sufficient to make her health-minded, she had better get busy and learn a few things. How can she be an inspiration to her pupils if she is just "a rag, a bone, and a hank of hair"? Then, again, just suppose she does know how to live rightly but her job will not permit her to do so. Whose fault is that?

Then there is the matter of overwork. Is the teacher required to participate in community affairs to the exclusion of any leisure time for herself? Any hobby time?

I believe that no administrator wants to have a teacher break down because of overwork; yet the circumstances often require very heavy loads with little or no rest periods. Even a work mule has to stop for breath once in a while. Maybe a teachers' union would not be so bad after all. Can you imagine a 40-hour week, no after-hour work, all teaching and preparation done in an 8-hour day, Saturdays and Sundays and evenings for yourself?

Does the teacher have any chance to use the recreational facilities in the school? If so, does she use them? It is hard to get a 40-year-old to play or exercise. However, here is one service that most schools could offer their teachers which should have the coöperation of the administration.

How about having the physical education department have some directed activities exclusively for teachers at the

end of the school day—at 3:30 or 4 p. m., say? Of course, that is asking the physical education teacher to do just a little more, but it is a mental direction rather than of a physical one. This has been done in a good many places with some success.

The physical education teacher, wherever she is, can do more for the general teacher than anyone else. We take for granted that the physical education person knows enough to take care of herself and has the right ideals. This proposal means extra work for an already overburdened person; but, as a service to her fellow man, nothing could be finer than for her to encourage, promote, and help carry out such a school program of recreation for teachers. Perhaps her schedule could be arranged to allow for these additional responsibilities.

It should be emphasized, incidentally, that recreation does not always mean a "daily dozen" of uninteresting calisthenics; thus there is an opportunity for those in other departments to do their share.

If there is a medical health director in the school system, the insistence upon a yearly physical check-up for every teacher should be required. The plea of the life insurance companies, "Give yourself a medical examination for a birthday present," is excellent advice.

AS we began this article with the statement that teachers as a whole are above the average in health, it is up to us to close it by resolving to follow that regime which will keep us there so that after thirty years of teaching we may enjoy the blessings of that $600 annuity.

Educational Policies Commission Resolution

Because of the general interest that has been aroused in the recent action of the Educational Policies Commission in regard to enrollment of high school students in the universities of the country prior to their graduation from high schools, the resolution in regard to this new policy is quoted herewith just as it was adopted by the Commission:

"We urge that, during the war emergency, selected students who have achieved senior standing in high school and who will, in the judgment of high school and college authorities, profit from a year's college education before they reach selective service age, be admitted to college and, at the end of the successful completion of their freshman year, be granted a diploma of graduation by the high school and full credit for a year's work towards the fulfilment of the requirements for the Bachelor's degree or as preparation for advanced professional education."

In adopting this resolution, the Commission felt that the arrangements for making the administrative adjustments should be worked out jointly by representatives of the colleges and high schools in the various states and localities.

Members of the Commission stressed the fact that the recommendation does not apply to students who do not rank high in scholarship and that the decision as to which students can profit from it must be made by the high school authorities. They were equally insistent that no modification of the recommendation should be made in practice which would deprive the student who omitted his senior year in high school to do a year's work in college, either of his high school diploma or of credit for a year in college. The recommendation is that the student have both.

The High School Faces Its Graduates

By JOHN W. ECKHARDT

AS a physician observes and listens to his patient's report of progress, so should we, as educators, make more careful observations of the "patients" with whom we deal. On the basis of the progress reports, the physician makes the necessary adjustments to insure desired results; and, similarly if we teachers are to prepare adequately those under our direction, we need to vary our practice to suit the demonstrated worth of our teaching. The physician keeps a long-term follow-up association with his patients even though they are not taking immediate direction and treatment from him. A long-term check on former students is most essential in education, especially to determine the effectiveness of our practices.

A teacher's institute, "The High School Faces Its Graduates," thus was designed to give the instructional staff of several high schools a chance to hear a progress report from their products; and it was indeed a revelation.

Out of this institute came a message of potent reality. Eight hundred high school and junior college teachers of Kern County listened to several students, who had graduated from high schools not more than four years previous and who had been selected to include a representative cross section of American youth, evaluate their high school experience in terms of the life activities they engage in today. The entire two-hour session was carried out quite dramatically as a court trial—the youth were the witnesses, Dr. Frank Hart of the University of California served as judge, twelve dignitaries from state, county, and local areas represented the jury, and the charge was, "Are the high schools meeting the needs of American youth?"

Not ony does this article do us the service of presenting an evaluation by young people of their high school experience completed four years previously, but it also describes an institute technique which resulted in what the author of this article calls "probably the most unique and inspirational county teacher institute yet held. As coördinator of secondary education for the Kern County schools, Mr. Eckhardt has assisted for the past three or four years with the institutes called regularly by County Superintendent Leo B. Hart. Serving as institute chairman at the time when the session described in this article occurred was Miss Elsie McGovern.

Before going to Bakersfield, Mr. Eckhardt taught social studies in the Needles School District for four years, and for a year or so was a high school vice-principal.

THE following is a composite brief of the more significant ideas which evolved from the institute.

"Guide Us Toward a Life Vocation." All testimonies revealed that neither sufficient nor proper guidance is being given to prepare the graduate for some kind of life work. Some of the former students indicated that they had lacked expert counseling, while others who thought they were counseled in the right direction found little or no use for the vocational instruction which they re-

ceived from various courses taken. "I can truthfully testify that during my four years of high school training I did not receive enough practical training either in theory or in working experience to help me get a job and hold it once I got it," was typical of the comments.

Preparation for one of the greatest of all life activities—earning a living—appears to have been neglected to some degree by each of the high schools represented. Several testimonies expressed regret that there isn't greater specialization of training, especially during the last two years in high school. A majority of the graduates felt they had needed, in addition to vocational guidance, more of personal guidance.

"Help Us Learn to Make Social Adjustments." While preparing for a life work is highly significant in the lives of people, their happiness also depends much on their ability to understand and get along harmoniously with their fellow beings. Testimonies indicated strong approval of school activities which provide social development through participation. Most so-called "extra-curricular" activities, as well as courses in the speech arts, were mentioned frequently as a means of achieving this social objective.

Each of the graduates had found that success in life depends greatly on ability to make social adjustments. The consensus of opinion was that many of these adjustments could be made in school through the willing help of teachers and counselors. Athletics, social activities, student body governmental activities, and informal classroom lessons were mentioned in the testimonies as being the best environments where social education takes place.

"Elevate Us Culturally." Each of the graduates realized a need for basic cultural understandings and appreciations. A happy existence requires more than merely earning a living and becoming socially adjusted. There are life activities and understandings which have great depths. Life proves to be quite shallow when one has not been given opportunity to experience aesthetic elements and their attributes. In fact, the continued refinement of American culture will depend much upon the efforts of public schools to carry the torch.

Several times over, these young people expressed a desire to be more culturally grounded. They accused the high schools of neglecting this phase of education. Said one graduate who is now a homemaker, "Outstanding achievements in literature, in the field of science, in the fine arts, and elsewhere are something that should be made familiar to the youth of today in order that they may be provided with standards of judgment before they themselves begin to judge." And another who is a college student remarked, "I know that I would like to understand more about art and music to gain greater appreciative feeling. Give us an opportunity in high school to take some cultural courses." A third felt that social studies, when presented properly, could develop in youth attitudes of tolerance.

It appears that as our youth develop into manhood and womanhood there is a natural tendency for them to reach for the finer things in life. The high schools must do their part in preparing a cultural foundation in youth that they might exploit their aesthetic tendencies to the limit.

"Prepare Us for Future Creative Thinking and Elemental Research." Happy is the person who is engaged in a satisfying life's work for which he is prepared, who is individually and socially adjusted, who has obtained a

grasp of the culturally finer things in life, and, lastly but of equal importance, who is prepared to make his contribution to himself and society through creative thinking and elemental research.

Education should not be identified only with schooling. It is a development of intellectual faculties which continues throughout life. Upon the termination of formal schooling, individuals could not possibly be totally prepared to experience harmoniously the remainder of their life. It is quite apparent that young people need a foundation in how to think and a kit of tools to enable them to investigate intelligently what others have thought and are now thinking. A democracy can survive only if its citizens are possessed of inquiring minds.

"I think that the high school courses that taught me most were the ones that helped me learn how to think," stated one graduate in a testimonial. The opportunity in school to organize and present one's opinion was declared to be invaluable by all graduates. Each indicated that courses in speech arts are most effective for assisting with the organization of thought.

The tools for continued research throughout life were stated to be a functional understanding of where and how to gain access to educational media, a reasonable mastery of reading skills, the ability to listen and understand, the ability to perceive visually phenomena in their total meaning, an understanding of society to guide in social interpretations, and other accomplishments of lesser importance.

DURING the course of the session the testimonies covered generally the whole of what high school education can do or is doing to prepare youth for present and future life, the graduates expressing such additional ideas as the following:

"A teacher who is inspirational, who is sympathetic toward her students, who has a sense of humor and lots of patience, is a teacher that I would say is a success."

"There is need for a closer relationship between the teachers in high school and their students. These teachers should be aware of the needs of their students."

"In athletics you learn to take criticisms and you learn to coöperate with your fellow men, and you make friends out on the field that you wouldn't make in the classrooms. But most of all you learn to respect the other fellow."

"I didn't realize how important extracurricular activities could be."

"One teacher had a marvelous philosophy of life, and since she felt it so deeply herself she could not but help give it to her students."

"As for the coming graduates, teach them what they want to know, but first of all show them what they need to know."

"As long as we are able to have discussions like these where former students can face their former teachers, we will always be assured that we will have a good, sound educational system."

In conclusion, it must be said that the graduate testimonials were most constructive. Both weaknesses and strong points of our schools were pointed out. On the basis of these comments it may be said that the public high schools of our community are meeting student needs to a considerable degree; our present task is an expansion of the activities which were recommended by the graduates.

Survey of Courses in Family Relations

By LUCILE TAYLOR

As a basis for improving courses in family relations in the Pasadena Junior College, Miss Taylor has conducted a questionnaire investigation of work offered in this area by the upper secondary high schools of California. She shares her findings with the reader in this brief article.

Miss Taylor teaches home economics in the Pasadena Junior College. She says, "Although I have had experience in teaching most aspects of home economics, my experience in teaching family relationships has impressed me as the most worthwhile."

SINCE interest has been shown in clarifying and redirecting family life education in the light of the changing functions of the modern American home and the new and different aspects of family living, and in extending education for marriage to boys as well as girls, a survey and analysis of existing courses seems justifiable.

To accomplish this objective, tested questionnaires were distributed to 140 high schools within California and to ten outstanding teachers of family relationships outside of the State. The first fifty-three usable returns were tabulated. Enough of the later reports also were studied to prove that the fifty-three paint a representative cross section of present practices.

THAT family relationships courses are not limited to the larger schools is shown by the fact that one-fifth of the schools have an enrollment of 500 or less students. Half of the schools report an enrollment of 1,500 or more.

Most popular course titles, in descending order, are the following: homemaking, senior problems, home economics, social problems, home living, home planning, and home relations. Seventeen other titles were reported only once.

Although the course is offered in many departments, the general practice seems to be to assign it to the home economics department. In nearly one-third of the fifty-three cases the course is required, and in almost half it is open to boys.

Fifteen of the fifty-three schools offer a one-semester course; fifteen, a two-semester course. In ten cases, instruction in family relationships occupies large portions of year courses in senior problems or courses of similar nature.

Objectives stress worthy home membership, appreciational values, and standards. The specific aims checked most frequently are "to develop an interest in sharing in the responsibility of the family in order to create and maintain a happy atmosphere," "to develop a realization that the home is a coöperative institution," and "to develop a keener sense of worthy home membership."

While content of these courses emphasizes the present and future home and the theory of child psychology, attention also is given to family backgrounds, biological aspects of family life, and practical work in child care.

Most teachers use from five to seven units. It should be pointed out that the title of the unit only indicates group-

ing of subject matter and that content may be included in the unit without being specifically designated in the nomenclature.

Ten or more respondents report devising units centering about personality, family relationships, family backgrounds, child care and training, and family finance. Other popular units deal with marriage, the use of leisure time, consumer education, household furnishings, and care of the sick.

Some teachers employ imaginative titles for these units, such as "The Promise of Tomorrow," "Living Happily With Your Family," "Dollars and Sense," "Learning About Ourselves," "Getting Along," "Family Fun," "Finding Ourselves in a Rapidly Changing World," "Food for Health and Pleasure," "Time and Its Value," "Knowing and Being Yourself," and "Acting Human."

FOR mixed classes the texts most frequently reported are *The Family and Its Relationships, Home Living, Home and Family, The American Family,* and *Living Together in the Family.* The *Boy and His Daily Living* is the only text used extensively in boys' classes; it is used also in ten mixed classes as well as in one girls' class. Favorite texts for girls' classes include *The Girl Today—The Woman Tomorrow, Care and Guidance of Children, Everyday Living for Girls,* and *The Girl and Her Home.*

A wide variety of books, magazines, pamphlets, and bulletins are used to supplement the text and basic references. The most popular supplementary references include the *Good Housekeeping Magazine, Reader's Digest, Parents Magazine, Ladies' Home Journal,* United States Government bulletins on child care and prenatal care, *Forecast Magazine,* and *Hygeia.*

Teaching devices utilized by more than half of the teachers include the use of outside speakers, panel discussions, and optional conferences. Also popular are excursions, movies, and required conferences. Reports and term papers, debates, reviews and book reports, demonstrations, notebooks and scrapbooks, projects, club activities, rating scales, reading of children's books, dramatizations, question boxes, and adjustment tests, also were reported.

A preponderance of teachers reported holding the Master's degree or at least having had five years of college work. While majors in home economics or social science generally were named, special courses and other enriching experiences also were reported.

Although the majority of the teachers are single women, 72 per cent live in family groups, and 36 per cent assume the full responsibility of the homemaker. Only two of the fifty-three teachers are men, both married.

A SPACE at the end of the questionnaire provided opportunity for comments. One person reported, "The books have too much the viewpoint of the sociologist or home economist. The subject has a more immediate appeal to young people if approached from the personality viewpoint, and I don't mean to make it a 'charm school.'"

One of the men recommended that the course be required and that it should include two weeks of separate instruction on sex adjustment. Another teacher reported that in her school the course would be taught the following year from the guidance rather than the home economics viewpoint.

Several mentioned that family life education should be woven into the warp and woof of the entire educational experience.

Use of the Voice Recorder in The Classroom

By HELEN L. WIRT

In this article Miss Wirt enthusiastically recounts her experience with the voice recording machine as instructional equipment in the classroom. She writes, "Since ability to read with understanding underlies achievement in so many fields, and since ability to read well seems to be somewhat rare, I am seeking constantly new motivations for reading interest in the classroom. Recording machines seem to be the happiest and most effective recent answer to the search."

Miss Wirt is head of the English Department at Oakland Junior-Senior High School. Twice she has been president of the California State Drama Teachers Association. At one time she was vice-principal of the Orestimba Union High School at Newman. She is a member of the "Journal's" editorial staff.

WE first made the acquaintance of a recording machine in a classroom situation through an enthusiastic young salesman who brought his machine to school for a demonstration while an advanced drama class and I were in the throes of rehearsing the term play for public performance. That afternoon he made several records which he left with us and which we subsequently played over and over to the delight of all and sundry, but most particularly to those who had made the recordings.

It may be said in passing that I have yet to discover the person who is not interested in knowing how his own voice sounds. Witness the long queues of visitors to the telephone exhibit on Treasure Island patiently waiting for that brief, magical moment when each might speak into the phone and hear his own voice. Or remember the thousands of records that were made in the tiny recording booths that dotted the Exposition grounds, and how eagerly the recorder awaited the play-back and just as eagerly, albeit more shyly, mailed the record away to a sympathetic family or group of friends that they might share the adventure.

That first afternoon, when we had recorded snatches of conversation, a bit of song, readings, laughter, and inconsequential chatter from all who made their way into the room—and they numbered among them a principal and a vice-principal—we recorded the entire second scene of the second act of the play, which chanced to be *Pride and Prejudice*. It was the big moment. When the lines made familiar to us all by weeks of rehearsal came back to us in the equally familiar voices of the cast, it made recording enthusiasts of us all.

"What really excellent timing we have achieved" . . . "Ah, just there So and So's voice was pitched too high" . . . "Listen, you see you do drop the endings of your words." . . . "I didn't realize quite how dreadful it sounds to pronounce a word so in one place and differently a moment later." . . . "Bob's English is really something; I'll have to work a bit harder over mine." . . . "This thing really shows a fellow up, doesn't it?"

It was thrilling. It was stimulating. And it was an experience that doesn't have to be lost because as the years roll along the record can be taken out of its volume and played again and again.

SOME time later another class had an opportunity to make recordings. As before, we made first of all a voice record, each one reading some bit of prose or poetry which he had chosen for the purpose. This record we played in class a number of times so that each student might hear his own speech, compare his own with that of each of his classmates and profit by what he had learned from his own hearing of the record and from the class comments. It is one thing to be told after one has given a reading or a talk that he has spoken too rapidly, that a lower pitch would have been more pleasing, that he mispronounced such and such a word, or that he failed to enunciate such another word clearly—when that bit of oral presentation has disappeared into the limbo of things lost—but quite a different thing to listen to the record and hear for oneself that these things are true, or, joy of joys, that one did not mispronounce the word. There it lives on record that he who listens may hear.

With the advent of the recorder came a new motive. The boy who loved poetry, and *Vagabond's House* in particular, read and reread it in preparation for a recording. Two boys who had been much less interested in their scene from *Green Pastures* than had been the rest of the class discovered that it would be fun to prepare it well for a recording. The boy who recorded *Casey at the Bat* for a record of humorous Americana discovered that he'd like to work a bit more on it and do a better reading. The girl who spoke too rapidly decreased her tempo; the girl with the voice pitched too high brought it down to a more pleasing tone; the boy who mispronounced bitter in *The Fool's Prayer* will never make that slip of the tongue again.

That same semester, there was an opportunity to broadcast on a local station. At that time there was no recorder available on which to make a transcription from the air, but later the same students made a recording of the program, even using background and transition music by virtue of using a music record and a phonograph.

HAPPILY enough, our enthusiasm and efforts did not go long unrewarded. At the outset of last semester, to the exceeding joy of us all, a recording machine was purchased for the use of our school. It not only records from a microphone and the air but is equipped with two turn tables, a public address system, phonograph and radio—and all for a very moderate cost.

As the semesters vanish into the years, we shall hope to create a library of student recordings that will preserve for memory such traditional occasions as the Shakespeare Assembly, the Capwell Cup Assembly, or a student cabinet meeting, perhaps. It has been the custom some semesters to have poetry reading roundtables in the junior division of our school. This semester, we shall be able not only to enjoy the readings but to record them for enjoyment in other classes not participating, or for use in semesters to come in classes at the same experience level.

Teachers in the music department already are finding it instructive and inspiring to students of both voice and instrument to make recordings. An instrumental teacher plans to record certain errors in technique—a student who hears the tone produced on the violin or a wind instrument as a result of faulty technique will learn what a dozen verbal instructions would fail to teach him. The public speaking teacher is eager to record individual talks, panel, and roundtable discussions. The language teachers glimpse possibilities for improvement in speaking and for enjoyment in listening to foreign languages.

THERE seems no end to the uses the recording machine may have as instructional equipment. First of all it provides the most exciting of motivations. It is a grand and satisfying thing to learn to project a character over the footlights and to know from the reaction of the audience out there that one really has achieved it, but some of us never get that satisfaction. In almost a twinkling, however, one can learn to modulate his voice for the microphone, to speak with clarity and ease once that first fright before the little iron monster has vanished. And somehow or other what one learns of modulation and tempo and careful enunciation carries over into the demands of every day conversation.

So much for what recording can do for the individual in the matter of speech skills; but it is also a motivation which makes literature, both prose and poetry, something to enjoy. First, perhaps, for the delight of recording, but secondly because when literature comes to life it also comes to have meaning. It comes to have meaning not only for the student who reads and records, but for the students who having read from the pages of books hear the same poems, plays, and prose readings recorded by fellow students or their predecessors; and who, having heard them read well, understand them and know that poetry has life and meaning and is not merely so many words strung together in queer patterns, that plays are in truth slices of life, and that prose can be meaningful and even entertaining.

How exciting to prepare a radio program not only for presentation in the classroom but for the purpose of recording it. How profitable to hear a recording of one's contest speech, one's play lines. When studying the one-act play, how much fun to hear it as it was recorded by the cast which played it several years ago. Records of special announcements may be made to be played in the auditorium over the loud-speaker system. Special broadcasts may be recorded and used later in Social Studies, Senior Problems, Orientation, and other classes. So may one multiply the uses of the recording machine in the classroom.

We have much to learn but much motive for learning. A recorder is not a machine which can be handled carelessly or without experience. There is the necessity for training a capable and responsible group of students who will be available at various periods of the day to operate it. There is an item of expense so far as needles and records are concerned, but neither of these approaches in cost some of the other instructional materials used as a matter of course in many schools. Then, too, many of the students will want to purchase their own records, and they become the permanent possession of the students, these will be quite as useful for classroom experience as the school records.

It is the era of the radio. The recorder makes the radio a classroom reality. It is the new Pandora box with Hope left inside.

Californians Participate in Social Studies Conference

The preparation of a statement on the rôle of the social studies and the social studies teacher in wartime America highlighted the twenty-second annual meeting of the National Council for the Social Studies in New York City, November 26-28. Four Californians were members of a nation-wide Commission on Wartime Policy which prepared a preliminary draft of the statement: Miss Rose E. Stetler and Miss Cecilia R. Irvine of Los Angeles; William B. Brown on leave from Los Angeles and at present with the Office of Price Administration in Washington, D. C.; and I. James Quillen of Stanford University.

Effect of War on the Long-Time Program

By ALBERT D. GRAVES

Frequently we say, in regard to someone's plan for what is to happen after the war, "If we don't win the war, there won't be any need for a plan." And then we are inclined to forget the long-term program and bend every effort to the present conflict. But we could say just as truly, "There is no point in winning the war if we are to lose what we are fighting for, or if we permit this same sort of thing to happen again." Both statements, of course, are true, so the real problem comes in the integration of the two—since we can live neither for the present nor the future alone. The present article, therefore, is an important one, for it discusses the long-time program in secondary education and the influence that developments due to the war situation may have upon it. The article is adapted from an address made by the author before the fall meeting of the Association of California Public School Superintendents.

Mr. Graves is deputy superintendent in charge of junior and senior high schools, San Francisco. Before taking over this position in September, 1941, he was superintendent of the San Bernardino City Schools.

WHAT influence will developments due to the war situation have on the long-time program in secondary education? Such a topic allows plenty of room for speculation without forcing one to appear in the rôle of a prophet. A highly respected authority in the field of history told me a few years ago that the only things that he had ever written which he didn't like to recall at the present time were the articles he had done during the heat and confusion of the last war. It is difficult to be objective in a situation where the whole machinery for peaceful living has broken down, probably never to return in the same form. The more serious the situation is, however, the greater the necessity for clear thinking and planning; and certainly education faces a greater challenge, and I personally believe a greater opportunity, than ever it has had before.

I say opportunity because the force of tradition loses its hold in times of crisis, and the reality and vital importance of the issues which have been facing education for a good many years stand out more clearly in a world which must face realism in order to survive. Certainly we know that education as one of the primary institutions of Democracy is very much at stake in the present crisis and that the basic needs of the individual and of society are changing more rapidly than the institutions which attempt to provide for them.

Blueprints for aircraft are obsolete now as soon as the first plane rolls off the assembly line. While education is not quite in the same category and there are many human needs that remain constant even in times of crisis, the means by which those needs are to be taken care of will change undoubtedly many times in the next few years.

So far as a number of fields are concerned, particularly in vocational education, during the last six months I have left the office on Friday night not sure what our educational program would be on Monday morning. These are temporary adjustments, however, in spite of

the fact that at times they may seem to engulf the whole program. What, then, are those factors in the present situation which may produce basic changes in our culture and to which we must begin to adjust at the present time if we are adequately to meet our responsibilities. Undoubtedly these are overlapping and interrelated.

Please witness the conflicts to which a human being has had to adjust during the past twenty-five years in American life: from war to peace and back to war again, from boom to depression, from deflation to inflation, from poverty to riches, from marriage to divorce, from short to long hours of work. We have faced conflicting ideologies of government, hill-billy bands promoting substitutes for statesmen, racial and economic groups fighting for supremacy, Europe brought as close as Chicago, and legal regulations governing every phase of American life. The war will not solve or diminish the number of changes that Americans will have to continue to face.

What does all this mean to us?

IT is obvious that the classroom is going to have to give even more time to a study of the basic needs of society, but what about the emotional development of people faced with this complex situation? Children can be conditioned toward change. An attitude of acceptance of desirable change and resistance to undesirable change can be promoted. On the other hand, continual frustration produced by constant confusion and the lack of security involved in the absence of stable standards produce only a neurotic population. Dictatorship is built on the basis of fear. Democracy depends on the absence of fear and the confidence of the people. These are emotional factors and are subject to treatment as such. The intellectual problems involved are only a part of the total picture.

Closely related to this problem will be the vocational and social reëducation of a demobilized army. It is closely related because failure in this job would only mean greater frustration and more insecurity, resulting in a further breakdown of emotional stability. That job will be even bigger than the one we now have of preparing youth for war industry. In fact it has already begun. I am informed that more than 500 soldiers a month are being discharged now because of emotional or physical disability. What are we doing about that problem?

There is a real opportunity now to establish consumer education as an important part of the school program. In the past there has been considerable resistance, but that resistance has been swept away by the present scarcity of consumer goods and the need for conservation.

We might well associate the consumption of propaganda in this connection. The battle of ideas is psychological warfare. Propaganda is the offense; education the defense. There will be no Armistice in this kind of warfare even after a peace pact has been signed.

There are important implications in the study of family life, not as a subsidiary to serving and cooking, but as a vital part of a changing culture. Families now are smaller. War is having a serious effect on them. Homes are being split because of enlistment and due to the necessity for many mothers to work. Fathers and brothers are being killed in action. The family relationship is less stable, and there is more emotional tension. These conditions will leave a residue of serious problems to be met. Education for family life must have more meaning and a greater stimulus than it now has.

The twenty-one American Republics to the south of us are beginning to assume a much more important place in our economy than heretofore.

"In expanding the educational program for more effective inter-American understanding no greater mistake could be made than to engage in it in a superficial manner, as if it were a temporary fad, a mere gesture for psychological effect, a matter of momentary importance, or an emergency expedient. Neither should it be viewed solely from the point of view of materialistic contributions it can make to the economic and political welfare of our country. This study must be built on strong foundations, must have full meaning, and must make a lasting contribution to a continuous and permanent program of inter-American culture. We will need to remember that we are dealing with 21 separate and distinct problems all different yet interdependent. A curriculum program that will facilitate understanding can well be a contribution of the schools of today and tomorrow."[1]

The importance of geography in the school program is clear to everyone. Here again, however, mistakes can be made—if we assume that geography can become a part of a child's school experience in any possible way except in relation to the whole social political and economic structure. Geography isolated from its frame of reference has little value in preparing one to face the world's problems.

Geography is being studied now in connection with war by both children and adults. It is extremely important in the planning of any phase of the war, in defense or attack, in supply, in rationing, in domestic and foreign relations, in transportation and communication; but it will assume even more importance in the solution of the problems of peace, in determining future balances in power, in commerce, in political relations, in standards of living, in movement of populations, in types of government, in labor problems and numerous other phases of our national and international relationships. Geography already has been given new meaning that undoubtedly will be more and more significant as time goes on.

The most obvious changes that are developing and that will directly and indirectly affect the program of the future are, of course, technological. Because of the war training program for industry, the work of the Office of Education, the activities of Army and Navy, and the interests of Americans in everything mechanical and scientific, there is now an awareness of the advances that have been made. Their impact on society, however, is not clear. Neither the dangers nor the benefits can be fully realized at this stage in their development. The effect of aircraft alone can hardly be estimated. Europe is now a neighbor a few hours away. The whole strategy of defense has been changed. Our maps have become obsolete. Every source material in the fields of transportation and communication will need revision. Political and economic isolation is gone, and because of that fact a large block of our social studies program will need revision.

In the field of science there are other new influences too numerous to mention. They include the development of plastics, new alloys, food concentrates, new medicines, new synthetics, new textiles, different fuels, new power developments, new methods of mass production. The control of these forces in a democratic society places additional demands on all of our educational institutions.

AT present we are in a very serious test of our resources, both spiritual and material. Can Democracy take a war of five or ten years? I am optimistic, but that is not the only question involved. Can Democracy stand up under

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[1] Edith Pence *et al.*, "Pan American Relations," *Mobilizing San Francisco Youth*, 1942, p. 65.

the aftermath of such a war? I think it can only if education starts now to condition future voters to the shocks they are going to have to withstand.

The basic drives of children will remain constant, but children's reactions to a quickly changing and more complex culture will change with every new adjustment required of them. Food, clothing, housing, medical care, employment, and recreation will continue to be the primary material needs, but the means by which they will be attained and the degree to which they will be provided will determine to a considerable degree the kind of education we will have. The schools of England are marching ahead under extreme hardship. The schools of China have gone into caves, but they are serving the needs of a revived national spirit. Both England and China are making plans for adapting their schools to postwar conditions and the changes that inevitably will come because of the war.

A revived American spirit will come only through understanding, and that is education's challenge and education's job. A recent issue of *Time* reported that "according to recognized aerotechnical tests, the bumblebee cannot fly because the size, shape, and weight of his body compared to the total wing area make flying absolutely impossible, but the bumblebee does not know this so he goes ahead and flies anyway." The schools of America also may have to fly anyway after this war is over.

Government Wartime Films

Wartime activities and wartime responsibilities are portrayed dramatically in the Government films being produced and distributed for school and community use by the Bureau of Motion Pictures of the Office of War Information.

These motion pictures are information films designed so that the American people will better understand the progress of the war. They include three aviation films—"Bomber," "Winning Your Wings," and "Target for Tonight"; five pictures showing war production in factories and on farms—"Bomber," "Tanks," "Lake Carrier," "Democracy in Action," and "Home on the Range"; two pictures dealing with civilian responsibilities—"Safeguarding Military Information" and "Salvage"; two films concerning our armed forces—"Ring of Steel" and "Winning Your Wings"; one film, "Men and the Sea," showing the men who man our cargo ships; another film, "Western Front," portraying the heroic fight of China against Japanese aggression; and three "song shorts"—"Anchors Aweigh," "Keep 'Em Rolling," and "The Caissons Go Rolling Along"—sung "off stage" against stirring action scenes.

Complete information concerning these films and how they can be obtained for school use may be had by writing the Bureau of Motion Pictures, Office of War Information, Washington, D. C.

Secondary Mathematics in The Emergency

By L. B. KINNEY

Nearly everyone will agree with the opening statement of this article, to the effect that "there is no longer any question as to the significance of mathematics in secondary education." But among mathematics teachers themselves, as well as among school people in general, there is confusion as to the implications of this statement for the secondary schools, particularly during wartime. This article outlines the writer's program of action for giving mathematics its proper place in the curriculum.

Dr. Kinney is an associate professor in education at Stanford. Prior to coming to Stanford in 1940, he was head of the Department of Mathematics at State Teachers College, Oswego, New York. He has taught mathematics in various places, including the University of Minnesota High School. Professor Kinney is the author of several texts and with Harl R. Douglas has published two important series, "Mathematics for Today" and "Junior Mathematics."

THERE is no longer any question as to the significance of mathematics in secondary education. Mathematics appears at the head of the list of requirements for practically all important functions of the war effort. Statements are continually appearing, outlining the mathematical qualifications for a variety of fields. Far from being required to defend the place of their subject in the curriculum, those interested in the teaching of mathematics are being told how important their contribution is and are being asked to produce immediate results.

While full of possibilities, the present situation requires careful study. No longer do we have a well-defined purpose for teaching mathematics, represented primarily by college entrance requirements. The individual pupils in our classes reveal a miscellaneous assortment of preparations to make and mathematical abilities to develop, in fields with which we are relatively unfamiliar. Some of these fields have considerable dramatic appeal, and their requirements are voiced articulately if somewhat vaguely. Others have few advocates and are in danger of neglect. We may fall easily into the error of confusing dramatic appeal with importance, of confusing competence to specify requirements in a field with professional competence to prescribe the curriculum and teaching procedures to meet these requirements.

The responsibility for seeing the problem as a whole lies with those concerned with teaching and curriculum construction in mathematics. It is their problem to analyze the outcomes to be achieved in present-day mathematics courses and translate them into a program for action. It is the purpose of this discussion to suggest the directions which such an analysis should take.

IN normal times what society demands of the schools is defined primarily in terms of the requirements for good citizenship. But the schools of today are confronted, in addition, with certain demands, which come to a focus in the general problems of mobilization of manpower and the maintenance of the

home front. We find one or both of these reflected in all current statements of mathematical requirements.

Without losing sight of the individual pupil, we may consider the problems of manpower and home front in terms of four major groups, as determined by the immediate future rôles of the pupils: those who will enter the armed forces, including the women's service branches; those who will be engaged in industrial production; those with aptitudes for the special fields of science; and the consumers who will maintain the home front. It is worth while to consider briefly what we know about the mathematical requirements of each of these groups, what data remain to be secured, and what steps should be taken to secure them.

THE mathematical needs of the armed forces—the army, navy, and air force—have been set forth in a number of interesting statements by competent spokesmen. Each one stresses the need for mathematical competence and depiores the present lack of it among those entering the services. They agree, in general, on the desirability of college preparatory mathematics through trigonometry and solid geometry, together with additional work in applications of arithmetic. While useful in establishing the general nature of the mathematical abilities needed, such blanket requirements need further refinement.

Superficially, the recommendation of a year of geometry, for example, appears quite definite. Actually, it still leaves the question of what geometry shall we teach. Are the desired outcomes to be the development of critical thinking, the understanding of the nature of proof, ability to analyze propaganda, and so on? Or are these to be outcomes incidental to the study of geometric relationships, constructions, and applications in technical, industrial, or scientific problems? Attempts to do both in the same course have failed in the past. The common complaint that pupils develop the ability to use a process but not to see the applications for it suggests that more precise definition of the outcomes to be expected are needed not only in geometry, but in algebra, solid geometry, and trigonometry as well.

Such information can come only from a detailed study of the requirements of each of the service branches. It is clear that important mathematical concepts required in the services are now being overlooked even while blanket prerequisites are being met. Such a study—the one that has been made of the texts and classroom activities of the military and naval pre-flight training courses — reveals, for example, that ability to solve problems in air navigation requires the use of vector triangles and parallelograms. There is not sufficient time in the military training program for these concepts to be developed from the beginning. This indicates that the basic concepts will have been introduced in the high school.

When an adequate study of the service requirements of mathematics provides the detailed information necessary, we shall be able to match the topics now taught against the mathematical abilities needed in the services. We should be able then to specify precisely *what* algebra, geometry, trigonometry, and elementary mechanics we must include in the curriculum.

AS we turn to the problems of industrial production we find, in the present scarcity of industrial workers to fill technical positions requiring mathematical competence, a clearcut illustration of a problem in mobilization of manpower, with the mathematics teacher carrying a major responsibility. We find also an illustration of the fact that women must be trained to assume a posi-

tion of technical leadership that they have not hitherto been called on to fill. The problem is, in part, one of arousing and maintaining interest, and in part one of adjusting the curriculum to meet purposes other than preparation for college. Not only must attention be directed to the needs of the girls in mathematics classes, but classroom practices must be planned also so as to secure interest and achievement in that large group of pupils hitherto considered as being of low mathematical aptitude.

These are new problems, and there is little previous experience to guide us. The most profitable suggestions come from the schools set up by the industrial plants themselves. The practices at Lockheed, used to overcome the aversion to mathematics so prevalent among those who need most to acquire mathematical competence, have been reported by Kadushin.[1] He found that relatively few employees in the plant were willing to enroll in mathematics classes. For the majority it was necessary to bring in the processes incidentally, in courses in blueprint reading, tool design, sheet metal layouts, and the like. When thus introduced through real applications, the processes were clearly useful, interesting, and easy to grasp.

Evidently the techniques that Kadushin has found successful are those that are basic in good teaching—to proceed from significant, understandable, problem situations, to the abstract mathematical principle, rather than the reverse. The problem is to discover real applications of mathematics in industrial and technical situations which the pupils recognize as important. Again we need an organized research for such materials. Until this is available, such classroom materials must come from the numerous texts, some of them excellent, on shop mathematics, from the coöperation of the school shop men, and from semi-technical periodicals. When it is generally recognized that women have an important place in industry, it is probable that these materials will be as interesting to girls as to boys.

Closely related to the problem of technical manpower is that of preventing a shortage of scientifically trained experts. Here, however, the problem is more acute. Unless a farsighted policy is adopted, the potential leaders in the field of science will be drawn off into the armed forces at a time when we need more leadership in science, rather than less. Two lines of action are necessary. First, the boys gifted with scientific aptitudes must be discovered and given the training required for leadership. Second, more women must be recruited into the ranks of science. Since mathematical aptitudes are important in qualifying the student for scientific study, the mathematics teacher has a responsibility in both lines of action. To accomplish the first we may need to overcome opposition from a shortsighted policy such as that which England found it necessary to reverse. The second is clearly feasible and is one which should be undertaken at once.

WITH the three groups we have been considering up to this time, the primary social requirement is the mobilization of manpower, in terms both of individual efficiency and numerical adequacy. The drastic changes in our way of life that have come with total war, however, throw the spotlight on the hitherto neglected problems of the home front. The fact that we have left the problems of the consumer to the last is typical. It does not imply, however, that the needs of all other groups may be met before his are considered. It is well to recall that the collapse of the home front was the imme-

1 Jacob Kadushin, "Mathematics in Present-Day Industry," *The Mathematics Teacher*, 35:260-264, October, 1942.

diate cause of the defeat of Germany in the last war. It is pleasant to think that "it can't happen here," but it is time we take steps to see that it does not.

There has always been lacking, in our economic system, an educated, enlightened, socially responsible consumer who knows what goods and services he wants and how to get them, whose tastes and preferences among the products of industry will direct its activities to worthwhile commodities, and whose investments will cause expansion in the directions determined by social needs. Today, this requirement still exists, with the additional demand that the consumer finance the most expensive war in history and prevent inflation as he does so.

Among the understandings needed by the consumer in the present emergency are those that arise from increasing incomes, coupled with the decline in opportunity for spending money. Rationing, substitutions, price ceilings, wage control, and whatever other efforts are adopted to avoid the natural consequence will be effective only to the degree that there is general understanding of their purpose. These problems are clearly quantitative in their nature. We recognize mathematics as the medium for thinking, communicating, and problem solving in the realm of quantitative ideas. We recognize, also, that the tendency to discontinue the study of arithmetic beyond the eighth grade has contributed materially to the mathematical illiteracy of our adult population. Why not bring these two thoughts together, in a study of the materials made available by the Consumer Division of the OPA, the Department of Agriculture, current newspapers and periodicals, and the community itself?

UP to this point we have discovered many things that should be done, and little to guide us in doing them. Yet the situation demands action, in the light of our best judgment, and on the basis of such information as is available. If we take action with inadequate data, we shall make mistakes, yet the greatest mistake of all would be to take no action. If provision is made for coöperative effort and interchange of information, we can capitalize on successes, avoid repetition of errors, and discover in even greater detail the nature of needed information. The desirability of several steps is quite clear.

1. Special provision must be made for those about to leave school to enter industry or the armed forces. It is unfortunately true that we have fallen heir to the consequences of a trend away from mathematics. Many juniors and seniors, both boys and girls, have had little or no secondary school mathematics, and only now are they recognizing the need for it. We have a responsibility to this group: first to meet, as adequately as possible, their immediate mathematical needs; and second, to awaken an interest in mathematics that will lead them to seek further study in the field, rather than to avoid it.

Neither of these purposes can be served by the traditional "good, stiff, review of the fundamentals." Such reviews may yield superficial results as measured by tests on the operations. They achieve nothing, however, to alleviate the current criticism that our graduates who can perform the operations with creditable speed and accuracy do not know how to apply these processes in a problem situation. They do have the positive effect of killing whatever interest in mathematics the pupil brings to the course. Classroom procedures directed to this end should be based on the work that has been done in diagnostic testing and remedial teaching.

What is clearly indicated is a study of real applications of the processes the pupils are most likely to use. Such a course is outlined in the report on a

"Wartime Program of Mathematics and Physics"[2] for the National Association of Secondary Principals. Experience in a few schools, at least, has demonstrated the effectiveness of such a course, dealing with problems of geometric constructions, measurement, graphs, formulas, and applications of arithmetic. We need further experimentation, by imaginative and well-informed teachers, to discover what can be done, and the effective ways of doing it.

2. The mathematics curriculum as a whole should be appraised and revised in the light of the purposes it has to serve. The present organizational form (as outlined in the Fifteenth Yearbook of the National Council, for example)[3] should remain as the basis of revision. The key questions should be these: How and by whom are these mathematical processes used? What are the real applications that make them significant? How do I expect the pupil to use them? If the results of these questions are negative for any process, then the problem is defined for further study —the activities of industry, the armed forces, and the home front, have a way of moving on ahead, and we may have to catch up. If further study fails to reveal either directly or indirectly an important purpose for the process, then it must make way for those that are functional.

With regard to the applications that we discover, our question is, where can they be dealt with effectively? We have seen that the vector triangle and parallelogram are important. Where should the solution of such problems be considered? Ability to understand and interpret maps constructed from various projections appears to be important, not only in the armed forces, but on the home front. Does this appear as a mathematical responsibility? If so, where does it fit into the curriculum in mathematics? Are there other uses of quantitative thinking that we should be dealing with, including those of the consumer, that have been neglected through overemphasis on logical sequence in mathematics?

3. We must make a definite attack on the problem of developing mathematical literacy in the groups with low mathematical aptitude. Our failure with this group in the past has been due, in part at least, to the abstract nature of the principles we have been emphasizing. The operations too often have been divorced from the significant problem situations in which they occur.

Effective practice with this group in industrial schools, as we have seen, is to stress the significance to the pupil of the materials dealt with in the course. Present-day psychology of learning holds this to be a fundamental necessity.

True, it has been possible, in the past, for our schools to place the emphasis on logical presentation with apparent success. We have been successful in developing principles and processes in a systematic way. Applications have been used largely as practice material for drilling on the principle. Such success as we have experienced was due to the characteristics of the group we were dealing with. Through superior intelligence, they could restore the abstract principle to its functional setting and realize its significance. This was called "transfer of training." For the new group we can depend on no such "soft pedagogy." The principles must be restored to their original setting — we must, in other words, deal with applications from the start.

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[2] *Secondary Education and the War*, Bulletin of the National Association of Secondary School Principals, pp. 40-51, October, 1942.

[3] *The Place of Mathematics in Secondary Education*, Fifteenth Yearbook, National Council of Teachers of Mathematics, Bureau of Publications, Columbia University, 1940.

Only when the pupil realizes the importance of the process and the nature of its applications is he ready to study its logical and systematic place in the field of mathematics. This meaningful aspect of the process then must be carefully developed, in order that he may become independent and effective in applying it to new situations for which it is appropriate.

Both meaning and significance are concepts that must be basic in revising the curriculum. It would be as disastrous to "go overboard" on significance in the future as it has been to overemphasize meaning in the past. Because mathematics is a logical, systematic field, highly sequential in its development, we must consider the vertical organization of topics to be certain that the prerequisite for each has been mastered before it is introduced.

IT is obvious that these proposals contemplate, at the same time, an immediate plan of action, and a long-time program of reorganization. The research and experimentation involved in this reorganization will require provisions for central organization of efforts and for coöperative study. We must have some such central agencies that can evaluate continuously the recommendations issued by individuals and committees, keep abreast of curricular revisions, recommend feasible practices, examine and evaluate current publications, and discover and report on applications as they occur in various fields. Clearly, some such central clearing house is essential in the experimental attack we have been considering. For this purpose the teacher-education institutions must assume a major responsibility, in coöperation with the National Council of Teachers of Mathematics, the California Committee on Education, and the State Department of Education.

Besides this "service" function, the teacher-education institutions have other important obligations. There is need for in-service coöperation with teachers, not only for the mathematics teacher desiring assistance in dealing with new applications, but also for the teacher being "converted" from other fields to teach mathematics. At last reports[4] there were shortages of mathematics teachers in about one-fourth of the states and surpluses of teachers of English, history, and the social studies in about the same number. The inevitable administrative readjustments are obvious. Teachers brought into mathematics from other fields must find immediate and effective assistance from the teacher-education institutions. If this is available, such teachers, far from being a liability, may prove to have a contribution in a new point of view with regard to the significance of the field.

Probably the most effective single contribution of the teacher-education institutions would be the establishment of summer workshops for the study of curriculum and instruction in mathematics. Teachers and administrators who are engaged in an active program of curriculum construction would find it useful to bring in their projects for continued study, with opportunities for consultation and guidance. The materials made available in such workshops, together with the opportunity for interchange of ideas among those actively engaged in curriculum revisions, should provide stimulating conditions for effective work. At the same time, such an organization well might provide consultants from fields other than education—military and naval services, the air force, industry, and various activities of the home front—with which the mathematics curriculum is concerned.

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[4] Reported by Office of Education in *Education for Victory*, 1:9, October 1, 1942.

THE emphasis in what has been outlined above has been directed toward the immediate problem of winning the war. This is the No. 1 problem today. Yet it must be agreed that winning the peace is a close second. An important question is this: To what extent will a curriculum organized for the emergency be functional in a postwar world?

As we review the probable needs of the groups we have been concerned with, we see that in providing for three of them—the industrial, the leaders in science, and the consumers — preparation is being made for the postwar world as well as for the emergency. While we do not know just what reorganization will be required for the groups entering the service branches, it is already clear that what is needed is not a "war" mathematics. It well may be, as some writers insist, that the mathematical concepts and abilities for this group are those needed for the postwar world as well. For the two illustrations mentioned above — air navigation and maps—this has been true.

While recognizing that any purpose inconsistent with winning the war must be postponed, we may at the same time be confident that any mathematical program developed to that end will, with reasonable readjustments, be adaptable to the postwar period. Furthermore, the techniques developed for the purposes of revision and reorganization will be a permanent benefit.

Library and English Groups Hold Annual Book Brunch

The Northern Section of the School Library Association of California held its fall Book Brunch Sunday, November 8, at the Hotel Whitcomb in San Francisco.

The theme of the meeting, held in collaboration with the English Teachers Association, was the literature of Latin America. A bibliography of Latin American literature compiled by Dr. Louis Manguio of Mills College and Miss Margaret Girdner of the San Francisco Bureau of Texts and Libraries was distributed at the Book Brunch, and the books on the list were displayed.

The speakers were Miss Marguerite Connolly of Marina Junior High, San Francisco, who as a president of the English Teachers Association gave the highlights of their November 7 meeting; Miss Jessie Boyd of University High School, Oakland, who represented the S. L. A. C. at the English Teachers meeting; Miss Margaret Girdner of the San Francisco Bureau of Texts and Libraries, who discussed the bibliography distributed at the meeting; and Quail Hawkins of the Sather Gate Book Shop, Berkeley, who arranged the book display.

Current Research in the Field of Secondary Education

Reviewed by WILLIAM A. SMITH

The Characteristics of Mentally Superior Children, by Steinn W. Steinson. Unpublished master's thesis, University of California at Los Angeles, 1942; 203 pages.

THE present century has witnessed phenomenal developments in the analysis and measurement of human capacities. In the vast majority of cases the point of departure has been the area of general intelligence, and more is known now regarding the nature and distribution of this factor than any other. All along the line, however, investigators have shown concern over other factors or traits, especially in their relation to general intelligence. Nevertheless, except in the case of such comprehensive and prolonged investigations as Terman's, and in a few other general treatises, no serious attempt has been made to present, on the basis of existing quantitative data, a composite picture of intelligence in relation to other factors.

Accordingly, Steinson undertook the task of compiling and integrating all available quantitative data regarding six characteristics of mentally superior children—children with an IQ of 120 or over—namely: (1) physical, (2) intellectual, (3) social, (4) emotional, (5) moral, and (6) achievement. One hundred and fifty quantitative investigations (including Terman's) were located. The pertinent data from these were organized and recorded in tabular and chart form — including thirty tables and thirty-nine two-page charts.

We shall present the highlights in the findings under the several characteristics in the order in which they appear above.

ALTHOUGH there is no evidence of a casual relationship, mentally superior children enjoy better health and possess physical characteristics which are in many respects superior to those of other children. Their health is considered better because they have less frequent headaches, less defective hearing, better nutrition, and give less evidence of mouth-breathing and nervousness. They are rated superior in physical characteristics because they weigh more and are taller at birth and maintain this superiority; they walk and talk earlier and reach pubescence in advance of others; they have greater breathing capacity, a stronger grip, and more physical energy; and they excel in muscular speed and reaction time.

To speak of the intellectual superiority of mentally superior children may at first sight appear redundant. However, many behavior reactions are not directly measured by intelligence tests, and many processes operative in responding to such tests are not easily identifiable in terms of behavior reactions. Hence, there is a measure of justification for the wide use of this concept. In any event, mentally superior children excel in originality, initiative, memory, sense of accuracy, quickness of response, intellectual interests, reading interests, desire to know, common sense, freedom

from learning error, educability, capacity to handle ideas, sustained attention, analysis, reasoning, vocabulary, ability to follow directions, foresight, ability and disposition to plan, and freedom from superstition.

Mentally superior children generally surpass other children in a wide range of social characteristics. They are superior in popularity, coöperation, social adaptability, social intelligence, and sociability. They have more play interests, possess greater play information, and participate to a larger extent and in a very superior manner in extracurricular activities. Furthermore, they excel in capacity for leadership, especially so in the more intricate types of situations.

Mentally superior children show marked superiority in emotional traits. Compared with other children, they show a lesser degree of neurotic disposition, more self-sufficiency, greater will-power, more ambition, less submissiveness, more persistence, greater endurance, more resistence to suggestion, greater permanence of moods, a keener sense of humor, and more cheerfulness and optimism. They show greater appreciation of, and excel in, the arts. They have stronger educational and vocational interests, and their lives are more influenced by planning. They have a greater desire to excel, are more obedient, and show better attitudes toward school.

The data uncovered leave no doubt regarding the existence of a definite positive relationship between intelligence and moral characteristics. Mentally superior children generally excel in such characteristics as honesty, truthfulness, trustworthiness, conscientiousness, fairmindedness, generosity, unselfishness, and sympathy. They are more courageous than other children, and their conduct is appreciably above the average.

Mentally superior children generally surpass other children in achievement—but, under existing conditions, not to the extent that their superior capacities would warrant. In other words, they are accelerated on the basis of chronological age but as a rule retarded on the basis of mental age. In fact, such retardation increases rather consistently with increases in levels of intelligence. This means that the AQ tends to drop as the IQ goes up. The findings generally support the conclusion that in the vast majority of cases the school is responsible for this state of affairs.

An overwhelming amount of evidence shows that schools have attacked the problem of providing suitable educational facilities much more aggressively in the case of the mentally inferior than in the case of the mentally superior. There is a respectable amount of evidence, however, which tends to show that in some cases at least unfavorable home and community influences and personality maladjustments acquired early in life are factors conditioning failure to achieve in keeping with intelligence expectations.

Finally, some frontier investigators suggest forcefully, although as yet on the strength of limited data, that the real shortcoming of the school in its treatment of mentally superior children is not so much its failure to prevent retardation as its failure to provide the right kind of curriculum. This suggestion rests upon the assumption that such children are capable of doing types of work which other children cannot do and that only such work will constitute a real measure of their capacity to achieve. Few, if any, conventional ability grouping schemes have attacked this problem even remotely. A revolution in curriculum provisions for mentally superior children may be impending.

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